SURGICAL MECHANISM AND PSYCHOLOGY.

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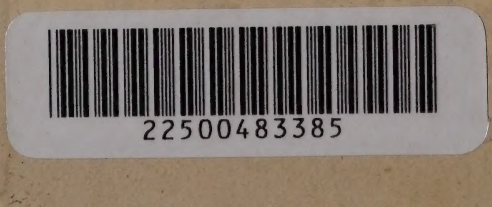
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PROSPECT HOUSE, CHARD.

James Gillingham

S. J. Gillingham.
May 1888.

ARTIFICIAL LIMBS,

SURGICAL APPLIANCES,

ETC., WITH

ILLUSTRATIONS OF REMARKABLE CASES,

TOGETHER WITH A

SERIES OF ARTICLES ON PSYCHOLOGY,

BY

JAMES GILLINGHAM,

SURGICAL MECHANIST,

CHARD, SOMERSET.

PRICE TWO SHILLINGS.

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PREFACE.

MR. GILLINGHAM, in presenting this Prospectus, begs to state that he has had some experience as a Surgical Mechanist in adapting artificial limbs and surgical appliances to the deficiencies and deformities of the human body, and although self-taught in this branch of usefulness, he has been singularly successful in some most hopeless cases; he therefore trusts that the success which has attended his efforts in relieving human suffering, the testimony and support received from the leading members of the profession, combined with the reports of the medical press, may insure him increased confidence.

In compiling this Prospectus, a careful selection of cases has been made so that sufferers may see what is possible to be done to meet their several needs. There is scarcely an amputation, it matters not what kind of operation, but is described and can be successfully fitted with an artificial member.

Not less important and successful are his Mechanical cases and the mechanism designed to meet the requirements of cripples. The most hopeless patients, that have defied all surgical skill, have been materially assisted, hence those who think their cases doubtful may take courage and hope again.

Further, Mr. Gillingham would direct the attention of his patients to another matter which is too often lost sight of: that is, the Surgical Mechanist does not trade in Mechanism, as an ironmonger does in hardware. It matters not how beautifully instruments may be made, they

are useless, and as so much waste material, without the mechanist's skill in adapting the same to his patients' wants. There are no fixed rules, as in ordinary business ; each case has to be made a special study, and is, therefore, an art. Those who devote themselves to this branch of usefulness alone know the anxious thought and nervous force required in difficult cases. So that it may be said that the patient not only gets the benefit of the mechanist's time and talent, which is capital, but he puts so much of his own life into each case. Thus, let it be clearly understood that, it is not merely the intrinsic worth of each instrument that is paid for, but the time and skill expended on each case.

J.G. would also add that he feels personally indebted to those patients who have permitted him to set forth their names and cases in this prospectus. There are a large number of cases different in character, only known to the mechanist and the patient, which from their nature could not be published, but reference is kindly permitted for the benefit and encouragement of others.

N.B.—In publishing this edition I have given most of the old standing cases in preference to those of a later date, so that sufferers may see the result attending the most difficult cases extending over a period of many years.

INTRODUCTION.

IN INTRODUCING this edition of my new book, it may not be altogether out of character to say something about myself. Patients frequently inquire where I learnt my business, and how long have I been in practice? When I inform them that I am self-taught, the question naturally follows, "What led you to turn your talents in this direction?"

Upon this question I will first direct attention, by giving an answer to the same. We should not despise the day of small things, for it is impossible to say how a little thing may turn the whole course of our lives, and lead into very different spheres of life to that first determined on.

My original business was that of boot making. I was brought up in my parents' old established business, and continued therein until twenty-five years of age, when I went to London to improve my knowledge of the trade, with the hope of returning to succeed to the business and carry it on, which for some little time I did. During my short stay in London I can remember well the shop windows of the surgical mechanists, but then I had not the slightest conception that my efforts would ever tend in this direction, for I was an enthusiast at my own business.

My attention was first turned in this direction by a patient of the late N. Spicer, sen., Esq., of my native town, who required a moulded splint for hip joint disease, at whose request the splint was made. Some time after this my sister injured her spine, and I moulded on a similar plan a support for her back. My first and second pieces of work are illustrated by engravings (page 41), taken from a photograph of the originals. Here the matter rested for a time. One day William Singleton, gamekeeper, in the employ of the late Lord Bridport, came into my shop to purchase some boots. Some time previous to this he

had had the misfortune to lose his arm at the shoulder, whilst loading a cannon at the celebration of the wedding of His Royal Highness the Prince of Wales.

After supplying his requirements, the conversation turned on the loss of his arm, and he said his lordship had made his case known in London, and nothing could be done for him. "Nonsense," I said, "take off your coat and let me see." I saw what he wanted and offered to make him an arm; it should not cost him anything. I first went to see N. Spicer, sen., Esq., who with his son, N. Spicer, jun., Esq., had performed the operation. "It is no use," was the reply; "nothing can be done for him, you had better go home and stick to your last." Receiving little encouragement, I said to the keeper, "If you are willing I will try." The matter was decided. I sent for the plaster to take a cast, on which I decided to work. I saw at a glance that if I could take a bearing on the (scapula or) shoulder, another round under the ribs, and a fulcrum from the opposite side, and free the axella and vessels of the amputated part from pressure, I should achieve what was desired. The arm was made and fitted; the keeper could lift a hundred weight or more, load and wheel a barrow, &c. I now took the keeper to the doctor as a surprise, buckled a strap round my waist, lay myself on the floor, and asked the keeper to pick me up with his crook, which he did, and carried me round the room, to the surprise of the doctor, who would not let me rest until I had taken the arm to London, and shown it to some few of the leading members of the profession, to whom he gave me introduction by letter. There was nothing remarkable in its make (illustrated page 25), only in the principle of fit and adjustment. I took the arm to London, and before calling on the medical profession, I saw ten artificial limb makers, produced the keeper's photograph, and asked what could be done for him. "Not anything," was the unanimous reply, "there is no stump, and we can only make something to fill the sleeve of the coat." Now I began to perceive that I had produced something original. I next called upon the profession. The first was the late Sir William Fergusson. I gave him my introductory letter from Mr. Spicer. He looked at the arm, and then he took a full length view of me. And with his broad, open chest, frank, genial and open countenance (I fancy I can see him now), he said, "What are you?" "A bootmaker by trade." "Well we

could not send for a better man. But let me tell you this, the ingenuity that made that arm can make a leg." If I may use the words, I became then and there inspired. This was the key note to my future career. I was next introduced to Sir James Paget, who recommended me to a gentleman who not only had the arm removed, but the scapula (shoulder blade) as well.

The remarkable phenomena connected with this case and the keeper's, led me to the study of Psychology, on which subject I hope at some time to publish a good size volume (see Synopsis at the end of this book). I returned home and soon had a patient with leg off within four inches of the body. By studying and following the lines of the natural leg I made him one in which he walked well, considering the short leverage. Another sufferer similarly situated, seeing my first patient doing so well, gave me an order for a leg. On its completion I took it to London, called on Sir William Fergusson, and told him his words had proved true, that I had brought him a leg. He then sent me to a gentleman who was in want of one. I took the order, and he was so pleased with it when fitted that he gave me an order for a second limb, and afterwards for a third.

I then put a short advertisement in, and took in the *Lancet* and saw an account of a youth who had lost both legs at Lincoln, one above and the other below knee (case 1). It was stated that nothing could be done for the boy. Seizing the opportunity I wrote to Lincoln and asked that the youth might be handed over to me, and I would undertake his case, on these conditions, I would make him two legs he should be able to walk well with. I would fetch him from Lincoln to Chard, and take him back. If I failed in the case I was to receive no remuneration and if I succeeded I was only to receive the price of one leg. The youth was handed over to me. On my way through London to Lincoln, I called on the late W. Callender, Esq, F.R.C.S, and told him where I was going and what I had undertaken. He looked at me with surprise, and said how are you going to do it, they can do nothing for the youth in town?

Well, doctor I am no match for you in argument, and all I can say is I can do it. But you have not seen the boy? Never mind, I can do it. Well, was the reply, if you succeed I shall have to call you up to

London. The youth was brought to Chard, and in a short time put upon his legs. In a week he walked fairly well. I wrote to Mr. Callender told him I had succeeded. In a fortnight after the legs were fitted, the youth was walking with me in the streets of London. We were both introduced by Mr. Callender at the Clinical Society, George Street, Hanover Square. My next visit was to Sir W. Fergusson, who now saw a living boy walking up and down his consulting room with two legs—he was so delighted that he took us to King's College and introduced us to the students, &c., &c. (see first case). The *Lancet* took up the matter and illustrated the case, so that I soon became popular. As the claims on my time in this direction increased I gave up my original business and threw my whole energies into this new sphere of usefulness. I had now to get a plant—forge, lathes, tools, &c., and learn how to use them. I soon began to work in metal, wood, plaster, leather and fabrics. So that after a time I could make almost anything. Some say this is a gift, but we all have talents and must cultivate them. I have found no Royal road to the successful results of this work, but I have attained them by hard and continuous plodding, close application and unswerving perseverance. I should not like to say how hard I have had to work, but those who have accomplished anything have had to do the same.

I started in life without anything besides a good home, and I had to sink my earnings for years to establish myself. Some of my difficulties are related at the end of this book in the Trials of an Inventor. Those inventions outside my surgical business, I wish I had never seen, for they took more out of me than I could afford. I was, however, led to them by the necessities of my patients—my Patent Combined Couch, to meet the needs of sufferers ; The Patent Radiator, whilst I was contriving an arrangement for moulding surgical splints, and so on with the others. Twenty years have now passed since I commenced this work and when I think of the difficulties overcome, starting as I did without a knowledge of the business, my success is a marvel to myself. When I think of the thousands of sufferers that have been helped during my practice of twenty years, I feel grateful to Him who has thus endowed me and directed my course.

Having so far answered the question, "What led you to the business?" I may now answer another, which is put quite as often

if not more so. "Why do you stay in Chard; London is your field? Why not go to town and make a fortune?" As if making a fortune was the end and aim of one's existence. We cannot live without money, it is true, but it should be only a means to some great end, and if any man lives merely to make money, I say he has missed his mark. I have had some tempting inducements to go to London, but I have declined them. In my native town I had an aged parent, active in business (which she would not relinquish), up to the age of ninty-one. I never cared to leave her, and no pecuniary consideration would have induced me to do so. Thus I am at Chard, and likely to remain. To increase my business beyond certain limits would be no advantage to me. Those needing help can find me out. Some of my patients have not found it too far to come from India, Africa, Australia, America, and other parts of the world, to avail themselves of my services. Chard is not a large town, but in proportion to its size and population, with its factories and enterprise, it vies with other towns in the West of England. It is in direct communication with the main lines, and is a junction where the London and South Western and the Great Western Railways meet. Patients can come here from any part of the kingdom in a few hours.

J. G.

*

LIST OF PRICES.

	£	s.	d.		£	s.	d.
Artificial legs for amputation above knee	18	18	0	to	26	5	0
Amputated through the knee joint	18	18	0	,,	26	5	0
Artificial kneeling leg, with lock-knee joint	15	15	0	,,	18	18	0
For double amputations special quotation							
Artificial leg for amputation below knee	13	13	0	,,	16	16	0
Artificial leg for amputation at ankle joint	8	8	0	,,	10	10	0
Artificial leg for amputation at ankle joint, adjusted above knee	13	13	0	,,	16	16	0
Leg below knee with pin instead of foot	7	7	0	,,	10	10	0
Pin leg with ball and socket, lock-knee joint	4	4	0	,,	6	6	0
Pin leg above knee	2	10	0	,,	3	10	0
Foot and leg for Symes' operation	6	6	0	,,	9	9	0
Kneeling pin leg	1	10	0	,,	2	2	0
Artificial arms and hands, with various instruments above and below elbow	16	16	0	,,	21	0	0
Artificial arms above and below elbow, with crooks and instruments without hands	5	5	0	,,	7	7	0
A combined set of instruments extending over the whole frame for paralysis	10	10	0	,,	30	0	0
Hip instrument for injuries and affections of the hip joint..	9	9	0	,,	12	12	0
Leg and knee instrument for knee disease..	6	6	0	,,	9	9	0
Instrument for fractured leg or weak ankle	3	3	0	,,	5	5	0
Instrument for children with bowed leg below knee (pair) .	2	2	0	,,	3	3	0
Ditto for children with affected knee and hip	3	3	0	,,	5	5	0
Rack and pinion boot for extension, or *Talipes* and turned feet	2	2	0	,,	4	4	0
Spine supports for lateral, posterior, and anterior curvature of spine	6	6	0	,,	8	8	0
Gillingham's scrotum truss					1	1	0
Artificial human eyes	1	1	0	,,	1	5	0
Knee cap for fractured knee.. .. .. ..10s. 6d.	0	15	0	,,	1	1	0
J. Stringfellow's patent galvanic battery .. ..10s. 6d.	1	1	0	,,	1	11	6
Knife and fork combined, for paralysed persons					0	10	6
Chest expander for round shoulders..	0	10	6	,,	0	15	0
Gillingham's patent combined couch, with head rest, footboard, table, arms, and handles complete					15	15	0
Spine or back-board chair, stained deal, in two sizes ..	0	17	6	,,	0	19	6
,, ,, ,, mahogany	1	4	6	,,	1	7	6
Poraplastic felt jackets fitted	2	10	0	,,	3	10	0
Applying plaster of Paris jacket with vest					1	5	0

The prices quoted may range higher or lower according to time and the difficulties to be surmounted. Patients often ask for quotations, but it should be clearly understood that it is not the intrinsic worth of a limb or instrument that is paid for, but the Mechanist's skill and time in treating the case.

Price Lists of Radiators for heating or for moulding splints on application.

REGULATIONS, TERMS, & HINTS.

TERMS CASH.

All limbs and instruments to be paid for on being fitted. Patients as a rule do not ask for credit. But experience has taught me that those who pay part, and wish for part credit, when they have the instruments, though they cannot do without them, do not care to pay the remaining balance, therefore I cannot give credit. Further, in needy cases some responsible person must become security for payment. I have known several cases where money has been collected and given to persons to obtain instruments, but the possession of the money has been such a temptation that they have spent it and never received the appliances.

I have legs, arms and instruments which have been here waiting for years, because the money which had been collected and intended for payment has not been forthcoming. I do not like to state this, but it is nevertheless true.

CONSULTATION FEE, 5s.

All orders must be accompanied by remittance before goods will be forwarded.

Patients visited, when business will allow, at a minimum fee of three guineas per day and journey expenses.

CONSULTING DAYS.

Mondays, but in all cases patients should advise by letter prior to coming.

HINTS.

J.G. suggests that patients consult their medical advisers before applying for instruments, as he prefers acting in conjunction with them. He takes no responsibility when patients place themselves in his hands.

Patients come to consult and for measurement, and pay a second visit to have their instruments fitted; when they prefer to stay he will try and secure suitable lodgings.

Patients should keep their appointments, or write, or telegraph. If they come out of order they cannot be promised attention, as they may interfere with others.

Persons suffering the loss of a limb should not have an artificial member for some months, as the stumps shrink shortly after use—consequently the limbs will not fit and the sockets become too large. The stump should be well bandaged for a month or two before the fitting of a limb.

Persons abroad suffering from the loss of a limb, can have an artificial one sent to them on their sending for instructions for self measurement and for the taking of a plaster cast, but he takes no responsibility where appliances fail to fit, therefore the necessity of the most accurate measurements. Neither does he take any responsibility in transit. All foreign orders must be accompanied by P.O.O.

All limbs and instruments should occasionally have the joints oiled. Numbers of instruments are spoilt and joints completely worn out for want of oil, which, with proper attention, would have lasted years longer.

The wearing of all kinds of surgical appliances and limbs is very trying to patients at first; they should be worn a few hours at a time, until a re-action has taken place and the irksomeness worn off.

J.G. does not spend time in experimenting on cases at his own risk. Where there is a doubt of success he will not take any case in hand, but when the patient has had the benefit of his time and skill, in cases of failure he expects to be remunerated just as if he had succeeded.

Sometimes it happens, that a patient becomes restored, or it may be, dies, and the mechanist is asked to re-purchase the left-off appliances. J.G. begs to say that he *sells* his time and skill. The intrinsic value of appliances is nominal, and he does not re-purchase left-off limbs or instruments, as when done with, they are simply waste material.

All surgical instruments should be looked to every few months and re-adjusted, more especially in children, otherwise to a growing child they will lessen the benefit they are intended to confer.

When there is a breakage some patients will take their instruments, with the idea of saving expense, to some country smith or mechanic; the result is these instruments are repaired as bent, and, unless they have the proper curves, they do injury. It is always wiser to pack them up in a wrapper and send them to the mechanist.

J.G. has hundreds of patients over the country from whom he never gets a line unless they meet with a breakage; he would like to hear from them occasionally and know what progress they have made.

The omnibus on being called for at the station, will take to and from the Establishment.

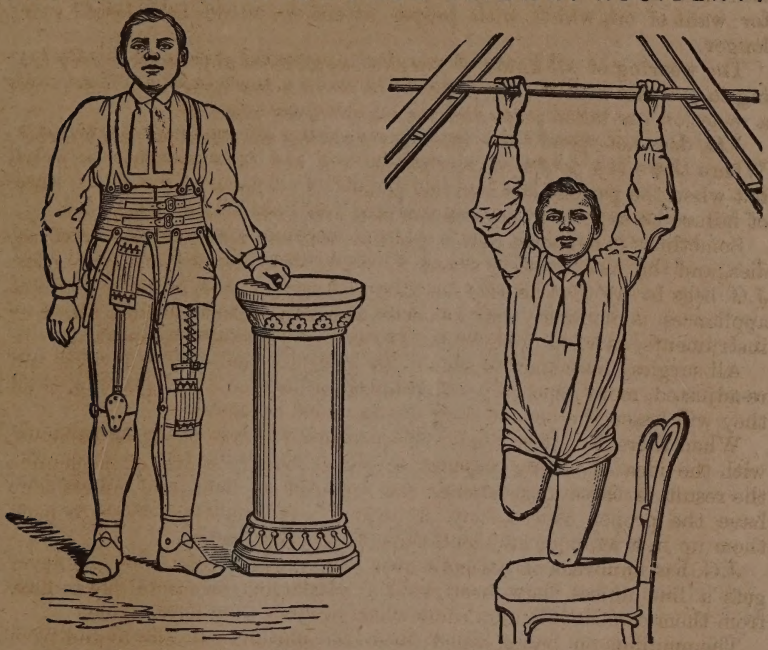
J.G. visits TAUNTON the last Saturday in each month, and may be consulted at Mrs. Doble's, next door to the London Hotel, and attends the Taunton and Somerset Hospital the morning of the same day. Also visits WEYMOUTH the second Saturday in each month, during May, June, July, August, September and October. Attends the Sanatorium at 12 o'clock, and may be consulted at Crabb's Commercial Hotel, St. Thomas Street, from One till Four. Patients should advise by post card, or wire, prior to visit.

N.B.—Chard is the Junction where the Great Western Railway and the South Western Railway meet, and patients can come direct from any part of the kingdom in a few hours.

FIRST SERIES.

ARTIFICIAL LEGS.

DOUBLE AMPUTATION FROM RAILWAY ACCIDENT.



CASE I.—J. Pringle, Lincoln, legs amputated by C. Brook, Esq., M.R.C S., London. This youth a fortnight after his legs were fitted, was invited with Mr. Gillingham to London and introduced by the late G. W. Callender, Esq., F.R.C.S. before the Clinical Society, October 23rd, 1868 ; also at St. Bartholomew's Hospital. Introduced at the University College Hospital, by J. Marshall, Esq., F.R.C.S. ; at the Westminster Hospital, by C. Houlthouse, Esq , F.R.C.S. ; at Guy's Hospital, by T. Bryant, Esq., F.R.C.S. ; and at King's College Hospital, by the late Sir W. Fergusson, F.R.C.S., who said it was the only case to his knowledge of like nature on record. This case was engraved in the *Lancet*, Nov. 7th, 1868, and in the *English Mechanic*. The patient was received home at Lincoln at the drawing-room of J. Norton, Esq., by a number of gentlemen of that city. J. Pringle could walk a distance of five miles with comparative ease and freedom.

FOR OPINIONS OF THE PRESS SEE NEXT PAGE.

OPINIONS OF THE PRESS.

"In *The Lancet* of the 8th of August last we reported a case of primary amputation of both lower limbs after a railway injury on a boy of fourteen years of age, successfully performed by Mr. Brooks, of Lincoln. The right thigh was amputated in the middle third, and the left leg immediately below the knee. Mr. Gillingham, of Chard, Somerset, whose ingenious arm for amputation at the shoulder was noticed in *The Lancet* of January 19th, 1867, having heard of the lad's unfortunate condition, undertook to fit him with artificial limbs, so as to enable him to walk; and those who witnessed the boy's performances at the meeting of the Clinical Society, on the 13th ult., well know how fully he has succeeded.

On the right side the artificial leg consists of a leather socket for the thigh, hinged to a hollow leather leg, with a moveable wooden foot. The boy wears a broad waist-belt, supported by braces over the shoulders; and to this four steel spiral springs pass in front to flex the thigh, whilst a broad elastic spring behind extends the limb. An elastic spring in the leg, and attached to the thigh-piece, serves to extend the leg; whilst the tendon Achilles is represented by a strong steel rod hinged to the heel; and a spring controls the ankle in front. The weight of the right leg is 4¾lb.

On the left side, where the knee-joint is perfect, but with only one inch of stump below it, the lower leg is the same as on the other side. Instead of the thigh-bucket on this side, the thigh is enclosed in a lace-up bucket, retaining the metal supports which hinge to the leg at the knee. In order to assist the movement of the knee a broad spring is carried from the leg to the thigh-piece, thus supplementing the action of the extensors. The weight of the left leg is only 3½lb.

The success of the apparatus in enabling the boy to walk is certainly remarkable. He can not only walk without sticks (at present somewhat awkwardly, but it must be remembered after only a fortnight's practice), but he can go up and down stairs with the aid of one stick and the balusters.

In addition to the legs, Mr. Gillingham has invented an ingenious "go-cart," by which the boy was trained to walk with the artificial limbs in less than a week. This might be of service in paralytic and other cases where a patient desires support without the use of crutches, and with the possibility of taking a seat to rest at any moment." *The Lancet*, Nov. 7, 1868.

"In a recent number of our journal we noticed the admirable improvements in artificial legs, invented by Mr. Gillingham, of Chard, Somerset, and to the best of our ability described the active manner in which a youth who, through a sad accident, had undergone amputation of both lower limbs, had actively climbed our staircase and walked about our rooms. We are very glad to see that the editor of our able contemporary, *The Lancet*, a journal which but too seldom gives illustrations, is so struck with Mr. Gillingham's wonderful skill in the production of artificial limbs as to think the case worthy of the above description and engravings, which we extract from *The Lancet* of the 7th inst. The invention is certainly one of the wonders of the age. Most assuredly the inventor deserves the hearty thanks of the community for what he has done; that he will do more can readily be gleaned in conversation with him."—*English Mechanic and Mirror of Science*, Nov. 7, 1868.

Bath and West of England Society—Taunton Meeting, 1870.—"The productions of Mr. Gillingham, the self-taught mechanist, of Chard, in the shape of artificial limbs, are most astonishing. A youth who had both his legs cut off walked at this department with perfect ease."—*Western Daily Times.*

DOUBLE AMPUTATION BELOW THE KNEE FROM RAILWAY ACCIDENT.

CASE 2.—Mr. W. F. Jones, legs amputated by T. E. Williams, Esq., of Talgarth, M.R.C.S.

BRECON, April 24th, 1874.

DEAR SIR,—I have great pleasure in informing you that the pair of artificial legs you made for me are a decided success. The medical gentlemen who have seen them admit them to be the best that have come under their notice. I have now worn them four months and can perform many wonderful feats with them. I can go out fishing, climb a ladder, mount a bank, and walk up and down stairs with the assistance of the balusters and do a great many things I never expected to do again, I can now walk without a stick, but I carry one for safety against tripping. I lost my legs through a railway accident at Talgarth, May 29th, 1873. The amputations were skilfully performed by DR. WILLIAMS, of the same place. On the 14th of December, 1873, I had my artificials fitted, after wearing them three months I could walk two or three miles and in three weeks could walk with one stick. I can walk long distances with ease and comfort. The people on my return home, expecting to see me on crutches, were surprised to see me walk so well. Dear Sir, I shall use my best endeavours to recommend all such cases that come under my notice.

I remain, yours respectfully,
WILLIAM FREDERICK JONES.

Note.—After six years of successful wear, Mr. Jones had grown out of proportion to his legs, and was supplied with a second pair, August, 1880. *He has now used these artificials for* 15 *years.*

DOUBLE AMPUTATION BELOW THE KNEE FROM RAILWAY ACCIDENT.

CASE 3.—Mr. D. Williams, Llanelly, legs amputated by R. Samuel, Esq., and R. Thomas, Esq., M.R.C.S., Llanelly.

Upper Park Street, Llanelly, 17th January, 1874.

Dear Mr. Gillingham,—I am glad to inform you again that I am highly pleased with my artificials, in fact, they excel my expectation. I am occasionally under the impression that they are my natural ones, and that in consequence of my being able to walk so marvellously well, also entirely free from pain.

I am, truly yours,
DAVID WILLIAMS.

In December, 1886, the artificial legs were fitted with two new feet; the legs have now been in use 14 years.

"Mr. Gillingham has attained wonderful success in the fitting of artificial legs. Our readers may remember the case of the boy who was exhibited at the Clinical Society with a pair of legs that enabled him to walk after amputation of both limbs for a railway injury. Mr. Gillingham made those limbs, and it will readily be understood, from that fact, that he is a complete master of all the conditions on which success in the construction of artificial limbs depend."—*Medical Press and Circular, July 16th*, 1873.

A CASE OF NATURAL DEFICIENCY.

CASE 4.—Private patient. A case of natural deficiency. Born without feet and left hand. This patient rides and walks well, and follow his farm duties with ease.

TESTIMONIAL.

Five Bridges, Collumpton, July 22nd, 1875.

Dear Sir,—I have great pleasure in informing you that the limbs you supplied me with in April, 1871, answer admirably. I have worn them with comfort without breakage or repair from the time you supplied them.

Yours truly,
W. BAKER.

To Mr. Gillingham.

J. Gillingham would here note that each case is made a special study There is no fixed rule, the art of manipulation to meet the needs of patients' cases is the secret of success.

DOUBLE AMPUTATION FROM DISEASE.

CASE 5.—Mr. M. Mussell, Alderbury, Salisbury. Legs amputated by W. M. Coates, Esq., M.R.C.S., Salisbury, and recommended to Mr. Gillingham by Sir James Paget, F.R.C.S.

TESTIMONIAL.

ALDERBURY, SALISBURY, Nov. 1875.

DEAR SIR,—I am very pleased with my legs, and should not like to be without them. I can get about pretty well. My parents are pleased to see me, expecting me to be on crutches. I thank God I can walk without them, and hope soon to walk quite well. I must thank you for your kindness to me while with you.

I remain, yours truly,

H. MUSSELL.

(Note).—Where limbs are amputated from accident the stumps generally get healthy and sound, but when the amputation is from disease (in some cases of gangrene or scrofula) the disorder may again show itself, and the stumps become troublesome. The above case furnishes an example after two years' use of artificial legs; one leg had to be amputated a second time above the knee, and at a still later period there were two more amputations.

DOUBLE AMPUTATION BELOW KNEE FROM RAILWAY ACCIDENT.

[PATIENT OVER 60 YEARS OF AGE.]

CASE 6.—Mr. White, Fremington, Devon, legs amputated by C. H. Roper, Esq., M.R.C.S., Exeter. A few days after the limbs were fitted this patient appeared at the Devon and Exeter Chirurgical Society, June 28th, 1876, and walked before the company.

BICKINGTON, DEVON, Feb. 3, 1878.

DEAR SIR,—Pleased to inform you the Artificial legs answer well. I have now been working twelve months at my trade I stand at the anvil about nine hours a day to work. I never expected to use the hammer any more. So I must tell you I am well pleased. I can walk to our church, a mile and half from our house, and back (three miles), and not take any notice of it. Hope you will excuse my not writing before. Concluding with many thanks, &c. Yours truly,

JOHN WHITE.

7, CHICHESTER PLACE, EXETER, July 13th, 1876.

DEAR SIR,—Beg to enclose you a cheque for your account, with two guineas added as a mark of my approval of your skill in fitting John White.

Yours faithfully,

C. H. ROPER.

In November, 1886, I met Mr. White, at Bickington, walking down the village. He appeared strong and well, though over 70 years of age. He had worn his legs eleven years, working at the forge and anvil daily, and not unfrequently he walked to Barnstaple and back, a distance of six miles.—J. G.

DOUBLE AMPUTATION FROM FROST BITE.

CASE 7.—The above engraving represents the case of S. Bishop, of Bridport, who was overtaken in the violent snow-storm of January, 1881, on his journey by foot from Bristol to Bridport; on arriving at Yeovil late at night, and getting no shelter, he continued his journey to Bridport; on reaching Misterton he found his energies exhausted, and took shelter, standing under a shed till early morning, when he made his way, as best he could, on two dead legs over hedges and fields to Bridport. On his arrival it was found that his hands and feet were so severely frost-bitten that it was necessary to amputate both legs and several of the fingers, which operation was successfully performed by Dr. Hay and his son.

The following are extracts from Samuel Bishop's letters a few months after being fitted with the legs:—"I am doing well with my legs, and I can now walk to the harbour and back, a distance of two miles and half, with the use of one stick." Later on he says:—"I can now walk a distance of six miles with very little fatigue, and at the rate of three miles per hour, carrying a basket with goods." Some months after Bishop walked from Bridport to Bristol on his artificial legs, average 14 miles a day.

Four years after I met S. Bishop at Bristol asking alms. I had frequently heard him spoken of by his helpers. The loss of parts of his fingers added to his difficulty in getting work.—J. G.

DOUBLE AMPUTATION FROM RAILWAY ACCIDENT WHEN FIVE-AND-HALF YEARS OF AGE.

THE RIGHT LEG AMPUTATED ABOVE THE KNEE THE LEFT BELOW.

CASE 8.—D. S———, of L———, who lately lost both her legs by railway accident. The above is engraved from photograph. As the Editor of the "Chard and Ilminster News" has given such a graphic description of my little patient, I quote the leader written at the time.

EXTRACT FROM THE "CHARD AND ILMINSTER NEWS," NOVEMBER, 1881.

"IF, as we are told, the age of miracles has ceased, the age of marvels certainly has not—so we thought when our attention was called during the week to another remarkable case just treated by our townsman, Mr. Gillingham—making the ninth instance in which he has had to supply two legs to patients who must otherwise in this respect have remained pitiably helpless for life. The case of Samuel Bishop, who lost both his legs below the knee by frost-bite, we noticed a few weeks since, and the successful treatment of it; our readers will remember, also, the more difficult case of the lad Pringle, which some years ago excited so much interest amongst the profession,

that Mr. Gillingham was invited by the late W. G. Callender, Esq., of St. Bartholomew's, to exhibit it before the members of the Clinical Society in London. His treatment was considered so successful that the *Lancet* devoted much space to it, and Sir W. Fergusson and others openly stated that they had known no such instance in all their experience. The success just achieved by Mr. Gillingham he considers to be even greater than in any case he has treated, because of the tender age of the patient—only seven years. Even with an adult it must require all the tact and energy possible to overcome the difficulties of first learning to walk, even when the legs supplied are below the knee; but with a child, who would naturally be disposed to resist rather than help the operator, the difficulty would be tenfold greater, especially when, as in this case, an artificial knee had to be supplied to one of the legs, which would require intelligent use and control at every step. Mr. Gillingham has, however, succeeded in furnishing two artificial legs, with all the articulations of the natural limbs, which, as a work of art alone, and apart from the adjusting we have witnessed, are models of skill; by these the child is now enabled to walk in comparative ease and comfort with the assistance of one hand and a stick, and slowly with two sticks, but the first few days of "drill," amidst tears and sunshine—as Mr. Gillingham puts it—were no less a trial to him than to his little patient. To lessen the difficulty of walking, Mr. Gillingham has, with his usual ingenuity, invented what he calls a "go-perambulator," combining, as it does, the advantages of a go-cart with the convenience of a perambulator, in which his little patient delights to give her doll frequent rides, every such treat to "dolly" bringing greater ease and confidence in walking to herself. On Tuesday we had the great pleasure of witnessing the dear child's performance, and found it difficult to identify the bright-eyed, merry-faced girl we then looked upon, with the sadly mutilated figure which some eighteen months ago was snatched from between the railway carriage and platform at Reigate, where the terrible accident occurred which necessitated the amputation of both limbs. We sincerely congratulate her rejoicing parents and friends, and also Mr. Gillingham, on this new trophy, not only to his genius, but to his tenderness of heart, which has enabled him to bear with, and ultimately triumph over, the seemingly insurmountable difficulties of the case."

Note.—After a month's training little Daisy's father came to fetch her. She walked to the front door to meet him, took his hand, and conducted him to the sitting-room. When home she soon began to go into the fields to play with the children, and at times refused to walk with a stick. She wore her legs three years when I received intelligence of her death. I consider this my greatest achievement over seeming impossibilities.

DOUBLE AMPUTATION ABOVE THE ANKLE JOINT.

CASE 9.—H. J. Beseley, 9, Helder-street, South Croydon, whose feet were crushed by a street roller. The mechanism of the legs illustrates how the case is met, that no pressure can be taken on the ends of the stumps, the stumps being too long for legs made after the construction of cases 6 and 7. Mr. Beseley writes—"I can walk about all day without being tired, and walk with ease a distance of six or seven miles." This patient was kindly helped and sent to me by J. Norton, Esq., of Lyndum Villa, Croydon. I mention this as it was through Mr. Norton my first patient J. Pringle, was supplied with two legs in 1868 (then of Lincoln).

The following is an article on amputations contributed by me to the *Medical Annual* for 1885, and illustrated by this case.—J. G.—

"We have illustrated here the mode in which Mr. Gillingham, of Chard, fitted artificial limbs in a case where amputation having been done just above the ankle, left sensitive stumps intolerant of pressure. It will be seen that the artificial limbs are so made that no pressure whatever is brought to bear upon the stumps, and a successful result obtained in a very difficult case."

"The following remarks on amputations immediately above the ankle joint, *from a surgical mechanist's point of view*, are worthy of attention. Mr. Gillingham states his objections as follows: Firstly, because in too many cases there is insufficient muscle to make a good flap, and it not unfrequently happens that the shrinking of the flap causes the bone to become prominent, this continually irritates the patient as the weight of the limb falls on the end of the stump, when it is carried forward in walking.

"2nd. When the articulating surfaces of the bones are removed, no bearing can be taken on the end of stump, as in ankle joint operations. Thus it must be taken under the head of the tibia, and in the cone of the thigh, as shown in the engraving. The stump is then suspended, but it frequently happens that there is a dragging of the end of the stump, and a tendency for the bone if not well rounded, to protrude through the skin.

"3rd. With an operation of this kind the patient cannot have what the mechanist would consider a properly constructed leg, there being no room for the ankle joint. The mechanism and springs being worked from the outside, makes the limb clumsy.

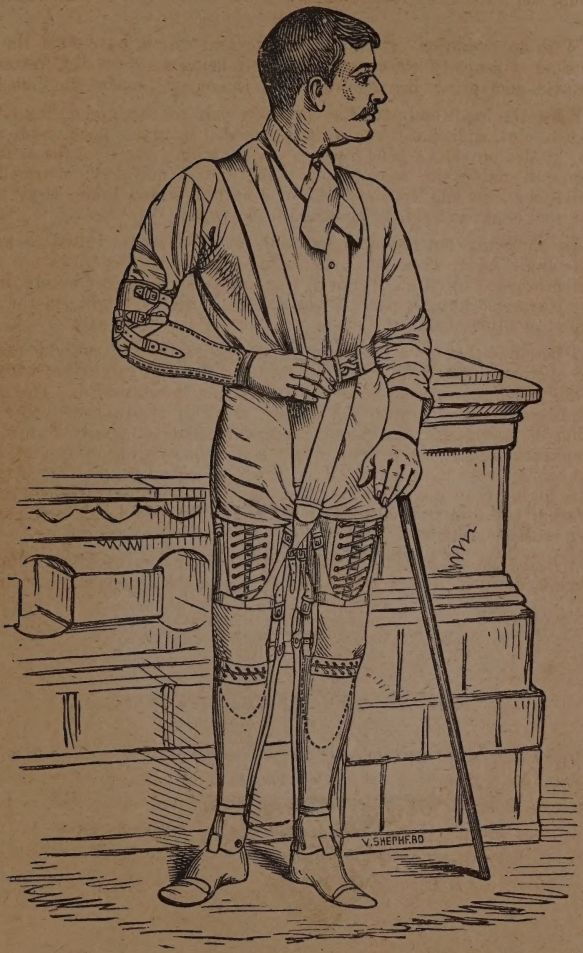
"4th. When the leg is amputated at the lower part of the middle third, downward from the knee joint, sufficient tissue is then provided to give a good pad to the end of the stump; it also provides a good lever to work the limb free from the annoyance of a long stump, and enables the mechanist to make a good useful symmetrical limb, with ankle centres, tendons, and springs, concealed within, which takes away the clumsy appearance, and is not so liable to breakage from strain.

"5th. In throwing out these suggestions no objection is raised to amputations through the ankle joint, when the articulating surfaces of the bones are left, and a good cushion brought up from the heel, this makes an excellent stump, inasmuch as the patient is enabled to place part, if not the whole of his weight, on the end. The thigh portion, as illustrated in the engraving, is then dispensed with.

"It may be noted that not a few have an impression that the weight can be taken on the end of stump, where the bones are cut through: this cannot be, without danger and suffering to the patient—all vertical pressure should be avoided. The mechanist is aware that in conservative surgery the surgeon saves all he can, there being considered less risk, but the mechanist sees points, from a mechanical point of view, and from difficulties experienced by the patient, which a surgeon at all times cannot, because not brought in contact with these facts. Thus the question arises, whether it is not better to amputate higher than the case illustrated, and what advantage is there really gained by amputating so close to the ankle joint? It may result that the patient has to submit to a second operation.

Artificial limbs should not be fitted for six or eight months after amputation, the muscles shrink, because their work is suspended, and the sockets may not fit.

TRIPLE CASE: TWO ARTIFICIAL LEGS BELOW KNEE, WITH HAND AND ARM.



CASE 10.—This engraving illustrates a Congenital Case, assisted by Surgical and Mechanical treatment. Both legs were amputated below the knees by Mr. Francis Richardson Cross, F.R.C.S., Bristol Infirmary and Ophthalmic Institution. Two good knee joints (not utilised), were brought into use, and two useful stumps preserved, to which artificial members were fitted.

The right stump is 5 inches below knee, with bent tibia, which is met by a wedge pad ; the left stump, 7 inches. The artificial members are that of an ordinary leg, in height about 19 inches. The stumps follow the dotted lines. One week after the legs were fitted, with the assistance of an arm and a stick the patient could walk a mile ; since his return home he writes to say that he can take his daily walks, and on the level ground, walk without a stick, and this after a few weeks' practice. When it is remembered that the patient—18 years of age—never walked from his birth, except upon his knees, and being deficient his right hand, was unable to cut his food at the table, which he can now most effectively do with the aid of the hand, arm, and appliances supplied, no sufferer need despair. The patient has perfect control of the artificials supplied, can walk up and down stairs, dress and adjust his appliances without the aid of a second person.

This is the SECOND TRIPLE CASE of a like nature in which J. G. has supplied two artificial legs and an arm, and the TWELFTH Patient to whom he has supplied. TWO artificial legs.

November 14th, 1886.

My Dear Gillingham,—I am happy to tell you my legs and arm answer well. I can take my daily walks and go up and down stairs without feeling any timidity. I am happy to say that my limbs are entirely free from all pain. My friends consider mine a wonderful case.

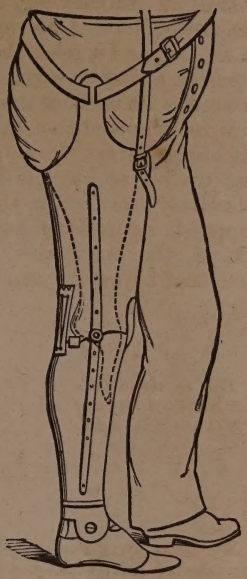
I am, yours sincerely,

B. G. A.

A HINT TO THE MEDICAL PROFESSION.

There are large numbers of sufferers on crutches with a useless foot —congenital or otherwise—who, by amputation, could be supplied with a useful stump to work an artificial member, and thus be rendered entirely independent of the crutch. There are others, helpless in both legs from various causes who, by surgical aid, could be supplied with two useful "artificials," as in the illustration.

FREAKS OF NATURE.



CASE 11.—Private patient. Both feet and legs curved as dotted lines, and deficient the fibulas. This patient can walk and ride well, keep his position in the saddle when hunting, clearing all barriers. After some years' of wear the patient grew out of proportion to his limbs, and a second pair was fitted with equal success.

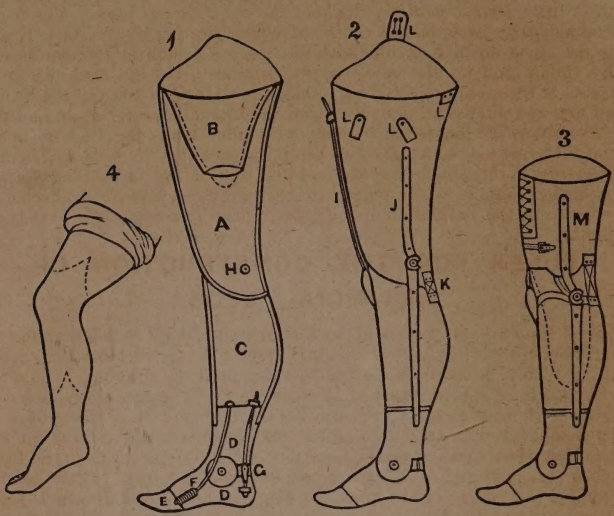
CASE 12 —Born deficient of the right thigh The leg supplying its place follows the dotted line. The instep of the foot forms the patela of the knee and the toes work the leg. This patient also rides and walks well.

GLEBE COTTAGE, EAST LAMBROOK, ILMINSTER.

DEAR SIR,—I have much pleasure in informing you that the Artificial Leg you lately made for me is very satisfactory. Indeed, it is more serviceable than I could have expected, as my case is very peculiar, if not unprecedented. I was born without my right thigh, the leg being in place of the thigh. I can now, by the use of the Artificial limb, not only ride on horse-back, but ride with perfect ease. I sincerely trust you will meet with increased patronage, so that many others may derive the same benefit as myself.

Yours truly, E.W.

In August, 1887, I met Mr. W. at a Fête, the leg was still in use, and had served him for twenty years.—J.G.



PRINCIPLE OF CONSTRUCTION.

In writing this article, if I may call it one, for the better understanding of the subject, I will divide it into the following sections :—The human leg and its principles of construction. How and by what rules an artificial leg should be made. Amputations, and the points at which to amputate when the surgeon has the option. The construction of legs. And lastly, the fitting and adapting them to individual cases.

THE HUMAN LEGS.

The legs of the body correspond to two pillars, the heads of which are secured in their sockets at the pelvis or large basin which takes the abdomen. Upon the pelvis is reared the spinal column and head. This upper structure is supported by the legs or pillars beneath. Now, these two pillars do not run down vertically from their head or socket ; if they did the feet would be as wide apart as the hips, but the thighs from the hip joints diverge in towards the knees so that the knees almost touch. This divergence or incline inwards is more in women than in men, as the pelvis is wider on account of the extra weight they have sometimes to carry. From the knees the legs run down vertically, almost to the feet, so that when a man stands properly erect, his feet stand pretty close together, but to make the base firm the feet turn outwards to widen the base of standing. If you stand erect and bend the knee forward and look over it at your toes, you will find that the great toe is almost in a line with the outside of the knee, leaving the foot part its width outside of the knee. These, then, are just the curves given to the natural leg that the gravity of the body may be well sustained. I would next say a few words about the joints in the leg. The knee joint is a simple hinge joint, the centre of which is eccentric—that is to say, the centre of the knee joint is not in the centre, but extends back towards the back of the leg. Thus, when a man is standing erect the swell of the thighs stand almost in a line with the toes. Thus the gravity

of the body falls in front of the knee centre, and the knee, so to speak, becomes locked; thus he stands at ease in perfect comfort and safety. The ankle-joint is a simple hinge joint with a little lateral motion; the toes also are a simple joint. The foot in construction resembles an arch, on the centre of which the leg bone rests. Thus the leg bone does not come down in a line with the heel; if it did the foot would fall every time with a thump and jar the whole upper structure; but the heel, which is one of the abutments of the arch, projects back; thus in walking the point of the heel touches the ground first and pitches at an angle; thus the foot falls gently down and the jar is broken. As soon as the foot is flat the tendon Achilles draws the heel up and throws the body on the great toe, which becomes the pivot on which the body moves and turns. I have given just in this simple way the construction of the human leg—what I may call its mechanical part, in which points an artificial leg is materially affected, and the closer we keep to the natural limb the more perfect we become in constructing an artificial limb.

RULES FOR THE CONSTRUCTION OF ARTIFICIAL LEGS.

An artificial limb for amputation above the knee should not be made almost straight, as many are, but from hip to knee it should diverge inwards and take the same lines as the natural limb. The foot, instead of being straight with the leg, should turn out, so that when the knee is bent a part of the foot should be seen outside the leg (looking over the knee); if made straight with the leg the toes will turn inwards in walking when they should turn out; the knee centre should not be in the centre, but extend to the back, so that when standing erect the gravity of the body may fall in the front of the centre to lock the joint and enable the wearer to stand in safety. If the centre of the knee be put in the centre of the knee the wearer cannot stand in safety, because the moment the gravity of the body falls behind the knee centre the knee gives out and down he comes, because there is no natural rectus muscle to help the knee. The ankle-joint of the leg should give simple flexion and extension and all lateral motion avoided, as it gives an unsteady motion to the foot and is very liable to get out of repair, as the will has no power to control.

POINTS OF AMPUTATION.

The success of an artificial limb in a great measure depends upon the nature of the operation. Bad operations and badly-fitted legs are bad indeed—a man may as well be out of existence as to wear legs in constant misery and pain. The best place to amputate when the surgeon has the option is at the lower part of the middle third downwards from the joint (see cut No. 3). This leaves a good lever and stump for the patient to use the limb and it makes a good stump for the mechanic to adapt his limb to. A stump too long or too short presents difficulties to the mechanic and is always an annoyance to the loser of a limb. Long stumps come in the way of the mechanism; in short ones you cannot get sufficient grip; some stumps have not much muscle and the edges of the bone seem to be protruding through the skin. The bones in operating should be cut up so as to have a good cushion of muscle under end of the bone, but the flaps not cut too high laterally. Some legs are amputated from disease, often scrofula; the disease sometimes lingers in the stump, which makes the wearing of a leg tedious.

EXPLANATION OF ENGRAVING.

Different makers employ different material and different plans of construction; but the principle with knee, ankle, and toe-joints is much the same. Legs in general are made of wood, willow, nominally called cork, because of its lightness, the sockets of which are hollowed to fit the stump. But to the construction of my own manufactory I shall confine myself. No. 1 represents a section of my leather leg. A and C are leather buckets made of the best light ox-hide. The foot and shank D D are made of wood—willow. As my original business was working in leather, I have a process whereby I can mould the hardest butt leather to the anatomy of the legs. The shank D is secured in the leather calf bucket C. The tendon at the back G is made of metal hinge, and is regulated by screw nuts and spring. F is a spring of vulcanite rubber, or a spiral spring, secured by gut to flex the foot. Thus, when the foot pitches at the heel, the foot falls flat; the pressure on the heel extends the foot; when the pressure is off the foot flexes, and the tendon Achilles supports the ankles and helps the heel up

when standing on the toes. E the toes, a leather sheath to shape, stuffed with horse-hair. This gives the creases in the boot and takes away the woody appearance of the foot. 2 is the outside of the leg. The thigh and calf bucket are secured together by the lateral steels J. Jointed at the knee with catch joints, K is a laced tendon to save the strain on the knee-joint and prevent the click of the same. I is a spring which is regulated to bring the leg forward in walking and acts as the rectus muscle. L L L L are where the straps are secured for fixing the leg.

THE FITTING OF ARTIFICIAL LEGS.

3 represents a leg for amputation below the knee, the bearing being taken in the taper or cone of the thigh, leaving the knee free to act without bearing under it and the stump free from pressure. The lower part is the same in construction as leg above knee.

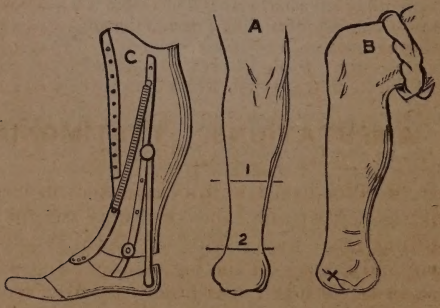
A leg for anatomy or mechanism may be well executed, but if not well fitted it is useless. For amputation above knee in some cases I take a cast of the stump without pressing the muscles out of shape. A socket is made on the cast of leather, which is fitted into the top of the leg, No. 1 B. Great care is required in fixing this, or it will throw the leg wrong in walking; thus transferring the fac-simile of the stump to the leg, leaving the end free from pressure and taking a certain amount of bearing on the sitting bone; the leg is made to fit accurately and comfortably.

AMPUTATION THROUGH THE KNEE-JOINT.

J. G.'s Artificial Legs are adapted to limbs amputated through the knee-joint, a useful operation which supplies a splendid lever, but one to which all other limb-makers object because it does not suit their make limbs. If there is any advantage to be gained in any surgical operation it is for mechanism to meet that need. For the Anglesea and other make limbs the leg must be amputated three or four inches above the knee.

Note.—All stumps, from the joints upwards, should be bandaged for some weeks before having an artificial limb, especially the stump from the joint downwards. This will help to give firmness and reduce it to proper size, as stumps shrink more or less after the use of a limb a few months. Not unfrequently stumps will open and close after the stump is thoroughly sound to discharge some foreign matter or piece of bone.

AMPUTATIONS AT THE ANKLE-JOINT AND PART THE FOOT.



A and B engraving illustrates the amputation of the foot. Stump A.—The foot is removed at the ankle, leaving the articulating surfaces of the tibia and fibula, the cushion at the back of the heel being

brought up under to make a good pad; this makes a good stump on which the patient generally can bear his weight. When this cannot be done it is preferable to take the leg off at the dotted line 1 and not at the dotted line 2.

Stump B.—The front part of the foot is removed, leaving the heel and the waist of foot. This operation I am not favourable to, inasmuch as there are no flexors to counteract the tendon Achilles, consequently the heel is drawn up and the amputated front tilted down, causing the heel in some cases to project considerably.

An improvement on this is an operation performed by B. Holt, Esq., F.R.C.S., senior surgeon to Westminster Hospital, who sent me his first case. Instead of removing the whole of the foot, or allowing the heel to project as in B, the astragatus bone under the tibia is removed and the whole heel brought under in a direct line with the leg; this made a good useful stump the same length as the sound leg.

This amputation took place some ten years ago. I have not seen a case like it since until December, 1887, when a young woman called on me to repair an artificial foot. On examining the stump I found the heel had been carried under and in a direct line with the tibia and fibula. Amputation performed by Dr. Wilder, Wabash Avenue, Chicago, America.

C is the kind of leg and foot supplied for these operations. Where the heel is left the artificial foot takes more of a slipper form at the back of the foot.

Note.—Artificial legs may be well made, but the great thing is the successful fitting and in being master of the conditions necessary to success. Sometimes there is a want of a little study and tact on the part of the patient.

I do not pretend to perfect the work of other makers, and when patients come to me with complaints I may say, before I do anything, let the maker who supplied the limb have the chance of remedying the defect, as stumps shrink and the limb requires re-adjustment, and this not unfrequently; this is no fault of the maker.

A patient came one day with a well-made leg for amputation above knee. "There," he said, "I have had that thing four years and can't wear it; I want you to make me another." Let me see where the fault is. I adjusted the limb, with a little trouble, and gave the patient a little drill. He soon walked well and continued to do so. It was really not so much the maker's fault as a want of tact and perseverance on the part of the patient. To be honest with other makers when there have been little difficulties (though it is the maker's place to put them right) I have never persuaded them out of their appliance for the sake of making another.

VARIOUS AMPUTATIONS. TESTIMONIALS, &C.

Double amputation below knee.

Case 13.—Mr. R. Woodward, ship's carpenter, on board the Sotroa. When near Adelaide, Australia, the ship was caught in a rough sea, some of the gearing gave way, taking off both Woodward's legs, also crushing the arm, and taking off the leg of an able seaman, and sweeping a third overboard. While I was fitting up Mr. Woodward's legs at Chard, Davis the able seaman was lying in the hospital at Adelaide, who when sufficiently restored came to England and I fitted him with an artificial leg and appliances for his arm.

BIRKENHEAD, April, 1884.

Dear Mr. Gillingham.—I dare say you will think I have forgotten you. I beg to say I am getting on well with my walking, but I experienced a little soreness. The doctor says the stumps will get alright in due time, &c., &c.

Believe me to remain, yours truly,
R. WOODWARD.

Note.—Soreness will continue longer in some cases than in others, sometimes pieces of bone will continue to work out for months. Much depends upon the nature of the accident or operation. In cases of emergency the Surgeon cannot at all times do as he would. Where he wishes to save a useful joint with a short stump and not sufficient muscle to make a good flap or stump. In other cases where there is plenty of muscle to make a good stump, after a time the muscle may shrink so as to leave the bone prominent necessitating in some cases (but rarely) a second amputation. I offer these remarks by way of explanation as these little troubles may arise in some cases and are entirely beyond the control of the Surgeon and Mechanist though they do their best for the patient.

Double amputation at the ankle and below the knee.

CASE 14.—C.W.B. This gentleman lost his foot at the ankle some twelve years or more before he lost his left leg below the knee. When I fitted the artificial leg below knee he had been wearing a leg for ankle-joint operation supplied by a London maker, who kept it in repair for the moderate sum of £12 a year, and this sum had been paid yearly for twelve or thirteen years!!! I will venture to say that the leg now supplied with the wear it will have, will not cost 10/- a year in repairs for the next ten years. If patients are so led away as to sign agreements to pay these sums (and not a few do this), all I can say is the matter rests with them. Mr. B. after amputation of the second leg with the use of the one artificial foot used crutches for three years, and was carried up and down stairs by his servants. In about two hours after the fitting of the second leg the servants came as usual to take him up stairs, when to their surprise he walked quietly from the room and walked up and down stairs just with the assistance of the baluster. When walking down he jokingly said to his helpers, "Now gentlemen, I shall not require your services any longer." I put it in this way to encourage the desponding, that they may feel what a privilege it is to be enabled to help themselves. Why state this? Because it is the best evidence of perfect fit and adjustment. This patient was sent to me by T. Bryant, Esq., F.R.C.S. (Guy's Hospital, London).

FELTHAM, MIDDLESEX, March 30th, 1887.

Dear Mr. Gillingham.—My new leg is very comfortable I have not required to ease myself of it while in use. I do not go long distances yet, but can get up and down stairs very well, and am gradually getting over my timidity (and in a letter of earlier date, "I am now getting on well with my walking.")

Yours truly,
C.W.B.

Not long after this I supplied a gentleman with a leg, who was wearing one made by another maker, I found that he not only gave a long price for it, but by contract was paying £15 a year for repairs, to include a leg when he required it, but a patient starting with two artificials would not require another in 20 years. The leg was well made, but there are equally good makers who simply charge moderate prices for legs and repairs, and I venture to say that if

you take my make legs one with the other, they do not cost the patients 10/- a year. Some time ago when in town a leading surgeon said to me, why Gillingham I hear that leg makers do a good thing, very few medical men come up to it. What is that sir? Get each patient to sign an agreement to pay £10 or £15 a year for repairing the legs. You have only to get a few hundred patients and you get a good standing income? That does not fall to me. I speak of this matter on this wise: Some time ago I fitted a gentleman with a leg who naturally enquired the price of different makers, but it came to my lot to supply the limb. On one of the makers being informed that the patient had come to me, he wrote to say that he feared he had gone by way of "Cheapside." If patients agree to pay these out of the way sums, it rests with them, and not the maker. But why do it when you can get a good limb free from a yearly tax.

Some time ago I was introduced to a gentleman who had lost one of his legs above knee, I took a leg of my own make for him to see. A good leg said he, but the price astonished him. What do you think I gave for the leg I have on? I gave 50 guineas, and 50 guineas for the leg I have in reserve, 100 guineas for the two. I should have been pleased to make the two for less than £50, but if persons with plenty of means will pay such sums, the makers are only to pleased to receive them. When a contemporary gives a friendly turn on cheapness, I simply remind the sufferer that he can take his choice and pay a first class price if he thinks proper.

41, Victoria Terrace, North Curry, February 2nd, 1888.

Dear Sir,—I have much pleasure in telling you that the leg which you made for me has more than realised my expectation. With it I can get over the ground at a fair speed, and contemplate a walk of five miles without fear of greatly fatiguing myself. It is surprising that so little discomfort should be experienced in walking with an artificial leg.

I am thankful for the advice that sent me to you.

Yours truly,

To Mr. J. Gillingham. T. STRANGE.

SORENESS.

Note.—Sometimes in hot weather when there has been continuous walking the skin may excoriate, and not unfrequently on first wearing a new leg. The best thing to harden and toughen the skin is Tannic Acid and Spirits of Wine applied with a little lint. It is a well-known custom with many jockeys before racing to rub the legs with Spirits of Wine to prevent stripping the skin in rapid riding.

Amputation at the Hip-Joint.

Case 15.—This is a most difficult part to fit a leg to, there being no stump, and the hip-joint being the joint for locomotion.

Mr. G. Mare (Leg taken out of the hip-joint) operation performed by A. J. Cumming, Esq., Exeter, M.R.C.S.

Amputation at the Hip-Joint, fitted with pin leg.

Morchard Bishop, June 18th, 1879.

Dear Sir,—I am getting on as well as I could wish with the leg, I will let you know again shortly.

Yours truly,

G. MARE.

Amputation at the Ankle-Joint.

CASE 16.

SALTBURN-BY-THE-SEA, May 25th, 1868.

I have much pleasure in testifying to Mr. Gillingham's abilities. My left foot was amputated at the ankle last year, by Perigroff's operation, and Mr. Gillingham has made me a foot, which enables me to walk with ease. The ankle movement is perfect, so that I can go up and down hill without difficulty, and the foot has the additional advantage of being light in weight. In appearance it is everything to be desired, and I can strongly recommend it as being durable and not likely to get out of repair.

Yours truly,
A. LETCHWORTH.

In November, 1887, the leg referred to, came for repair, when I was reminded by the wearer that it was 20 years ago I supplied it.

Amputation at the Ankle-Joint.

CASE 17.

TREVECCA COLLEGE, July 4th, 1873.

Dear Mr. Gillingham.—I realy feel quite ashamed that I have not written sooner to give you further particulars as to how I get on with the artificial foot, as I have by this time had the experience of a full year. I can say with certainty that it answers its purpose admirably and that I have not the slighest inconvenience from it, in fact it has been of the greatest comfort ever since I became accustomed to it. I am now able to walk a distance of four to six miles with comparative ease, and although it has been in constant use, it is in very good repair.

I am, yours truly,
E. HOWELLS.

There are important points of difference between Mr. Letchworth's and Mr. Howell's. In the former (amputated by Sir James Paget) the articulating surface of the bones remains, the leg is adjusted below knee and pressure can be taken on end of stump. In the latter case, the ends of bone had to be cut from an injury ; and hence the weight is taken above the knee.

(See article written for the *Medical Annual.*)

Amputation through the knee-joint (leaving the articulting surface of the Femor).

CASE 18.

47, DICK'S PLACE, EDINBURGH, Nov. 11th, 1874.

Dear Sir,—I am glad to be able to state that I get along much better than I anticipated, I can now walk two or three miles with comfort. If you can make me another limb without requiring me to go south I would like you to do so.

Yours truly,
R. S. WAUGH.

To Mr. Gillingham.

J. G. would here note that it is always wise to have two legs when the patient can afford it, and take one when travelling in a suitable trunk with clothes.

The patient referred to (Rev. A. Letchworth) was one season ascending Mont Blanc, his guide coming on behind with a box. Tourists were perplexed to know why it was taken up the mountain, and on his return it became the topic of conversation at the hotel, and it turned out that the box contained an artificial leg, which he had taken the precaution of carrying in case of a breakdown.

Amputation through the knee-joint.

CASE 19.

TORQUAY TURKISH BATHS, June 12th, 1882.

Dear Sir,—I have worn the artificial leg you made for me for the last eighteen months with the greatest ease and comfort. I have walked for miles at a time without getting tired, and many who are ignorant of the fact can only notice a slight limp in my walk, thanks to your kindness and ingenuity. I pray that you may long continue to be a benefactor to many sufferers like myself.

I am, dear Sir,
Yours heartily thankful,
J. H. KEISER.

In December, 1887, a second limb was supplied.

Note.— Some artificial limb-makers, those of the Anglesea type, object to operations through the knee-joint, because it interferes with the tenon and mortice knee-joint, which necessitates the thigh being amputated six inches above the knee. There is no difficulty with legs of my own construction and it preserves a good lever.

CASE 20.

SETTLE, August, 1869.

Dear Sir,—The Leg invented by Mr. Gillingham cannot be too highly spoken of. When but six years old I had my left leg amputated a little below the knee, and from that time, up to the age of 18, walked entirely on crutches. In August, 1868, Mr. G. supplied me with an Artificial Leg which has hitherto exceeded my expectations. In consequence of the amputated limb being inactive for so long a period, I found learning to walk very laborious at first, but that soon wore off, and I can now enjoy long walks with little fatigue. For comfort and appearance the leg is everything that could be desired in an artificial one, and I do not hesitate for a moment to recommend all unfortunates to patronise Mr. Gillingham. E.M.B.

Twelve years after supplying the leg I met Miss B—— at Bournemouth; the leg was still in use and worn with freedom and comfort.

Cases and testimonials might be multiplied, but the selection given, with a few exceptions, embraces almost every form of amputation in operative surgery.

Amputation above knee.

CASE 21.

WILLITON, SOMERSET, Nov. 28th, 1886.

Dear Sir,—The artificial leg you made me 17 years ago has succeeded well. I do not know how to express my gratitude. I have during that time carried on my business as dressmaker with ease and comfort. I can walk a distance of five miles with comparative ease, and shall be only too pleased to recommend you sufferers.

Yours faithfully,
SARAH GOULD.

About a month after I supplied this leg the patient met with a mishap and broke it in two pieces through the knee-joint. Since the repair it has been in constant use, with just the necessary attention. I mention this, as the best makers cannot guarantee anything after once fitted, a slip may break either natural or artificial legs.

Amputation below knee.

CASE 22.

H.M.S. FORMIDABLE, PORTISHEAD.

Dear Sir,—The leg you supplied me with five years ago has answered well. I can walk ten miles and feel as if there was nothing the matter. The artificial has not chaffed from the first time I wore it. I would recommend poor unfortunates to apply to you.

I am, yours truly,
THOMAS BROWN.

Amputation below knee.

CASE 23.

QUEEN'S HILL, CIRENCESTER, July, 1887.

Dear Sir,—I have great pleasure in informing you that the artificial leg supplied gives me great satisfaetion. I can walk with ease and comfort and follow my employment with pleasure. It would take a close observer to detect it from my natural leg.

Yours, truly,
R. CUMMINGS.

Mr. Cummings is an engine driver on the line. I supplied him with his first leg 14 years ago. He has held his situation, looking after his engine, getting under it to oil and do the necessary work of engine drivers. I supplied him with another new leg in July, 1887. I am giving most of my old cases in this book in preference to new ones, that unfortunates may see what success attends the use of the legs.

Amputation above knee.

CASE 24.

PENROSE COTTAGE, WOOD STREET, TAUNTON, July, 1887.

Dear Sir,—I find a great benefit from my leg and now get about with confidence. Hope you will be long spared to help sufferers.

Yours truly,
JOHN HARRIS.

Amputation above knee.

CASE 24A.

HONITON, Nov. 29, 1887.

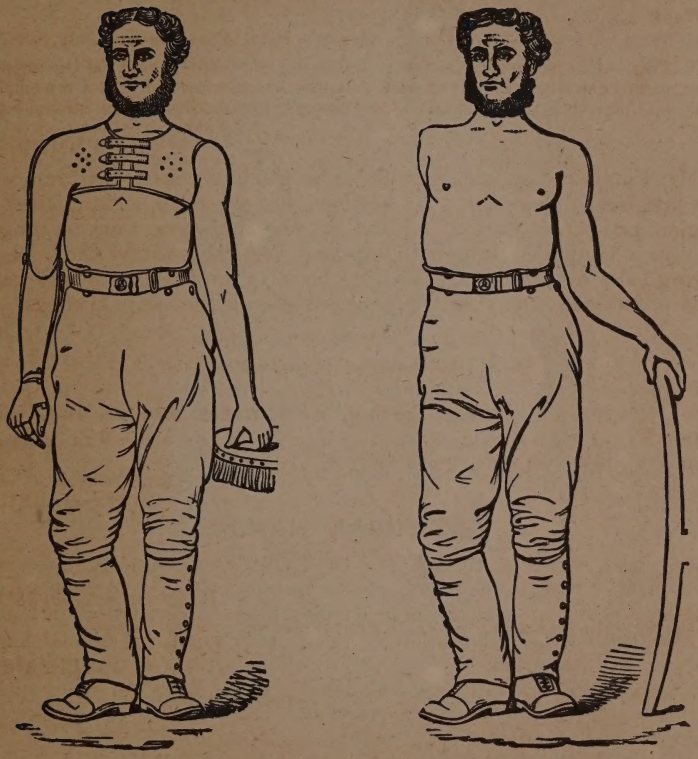
Dear Sir,—I need scarcely say the leg has turned out a perfect success.

Yours faithfully,
W. J. MATERFACE.

SECOND SERIES.

ARTIFICIAL ARMS AND HANDS.

THE SCAPULA-ARM.



1 2

CASE 25.—W. Singleton, late game-keeper to the late Lord Bridport, arm amputated by N. W. Spicer, Esq., M.R.C.S., Chard. Amputation at the shoulder-joint, and illustrates the principle upon which the scapula arm is adjusted at the shoulder, so that the patient can lift a hundred weight without affecting the amputated part. The arm was supplied without the hand. There is nothing remarkable in the make, being my first limb; the principle upon which it was adjusted is the leading feature in it.

GILLINGHAM'S SCAPULA ARM.

"The apparatus for the keeper, which Mr. Gillingham has contrived, is most ingenious and praiseworthy."—*The Lancet*, October 13th, 1866.

"We have had some artificial limbs submitted to us for our inspection made by Mr. Gillingham, of High Street, Chard, Somerset. The novelty of these instruments consists in the extreme lightness of the material employed, as also the manner of adjustment. We have notes of a case from which we make the following abstract:—A gamekeeper, in the service of Lord Bridport, whilst firing a salute on the occasion of the marriage of the Prince of Wales, was ramming home a charge of powder, when it exploded and forced the ramrod through the humerus, causing so much mischief that it was necessary to remove the arm at the shoulder-joint, which operation was performed by N. W. Spicer, Esq, jun., of Chard. The case was explained in London to several surgical instrument makers, but they said they could not adapt an instrument to be of any practical use, but could make one which would restore the natural appearance of the limb. By Fig. 1 it will be seen that there is no bearing to be had from any stump; therefore the bearings had to be made from the sound side, as is well shown in Fig. 2. The instrument is adjusted by means of a kind of corset, which has a prolongation over the sound shoulder, as well as under the axilla. Such has been the success of this apparatus that the man can now raise as much as a hundred-weight, can wheel a barrow, carry water, and rest a gun while shooting."—*The Lancet*, January 19th, 1867.

N.B.—This was my first arm, and, strange to say, that over a period of twenty years I have not fitted a second for amputation at the shoulder socket.

ARTIFICIAL HANDS

Are most useful when adjusted to arms for amputation below the elbow, but at best serve principally to restore the natural appearance. The best pieces of mechanism are poor when compared to the wonderful construction and adaptation of the human hand. Artificial hands are made to articulate at every joint. The appliances used, such as pen, knife, fork, or knitting needle, are fixed in the palm by a spring and the fingers set in their position. It is surprising with what natural effect an artificial hand can be used by an expert manipulation. For general work the hand is removed and various appliances fixed in the wrist. An artificial hand is of no practical good to a working-man, unless in some genteel situation, or to restore appearance when the work is over.—J.G.

There is not anything more difficult to imitate than the human hand. A philosopher has declared that "It is the hand that has elevated man above all other animals; that if we had been made with hoofs instead of hands we should never have risen above the level of the ox and the horse."

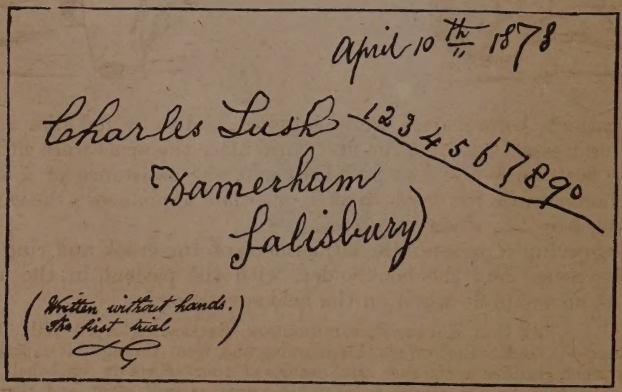
The monkey has a hand much like ours, except in the length of the thumb—in fact, he has four hands instead of two—but he never made a tool, or applied his hands to any practical purpose, beyond the act of grasping a limb or holding a fruit.

The constructive brain and the perfect hand are the distinguishing features of the race to which we belong, and all the progress that has ever been made in the world is the result of the combined and harmonious action of the brain and the hand. As the brain advances in intelligence the hand generally assumes new powers—not apparent in any change of its form, that was perfect in the beginning, but in the gift of adapting itself to the work which it is called upon to perform. Its sensitiveness of touch is wonderfully increased by use; the several parts of the hand apply themselves to the work that is to be done with new facility; the two hands learn how to play into each other to the best advantage, and acquire the faculty of performing feats which sometimes appear to be almost supernatural—the most complicated movement being done so rapidly as to evade the observation of the eye. Nothing could be more marvellous than the rapidity and accuracy with which the hand follows the direction of the brain in the performance of a rapid and complicated piece of music on the pianofore. Then again, the hand is, in some sense, a teacher of the brain—suggesting, by what it does, many other things which it is capable of doing, and so putting us upon the plane of further improvements.

DOUBLE AMPUTATION OF THE HANDS AND PART OF THE FORE-ARMS.

3 4

CASE 26.—One arm amputated from cancer, the other from the explosion of a gun Mr. C. Lush, Damerham, arms amputated by T. B. Rake, Esq., M.R.C.S., Fordingbridge.



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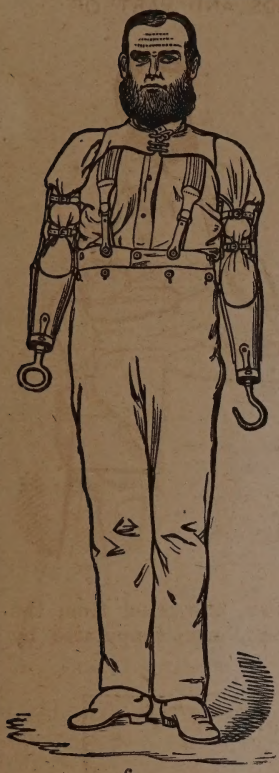
The above writing is a specimen copied from the original a few hours after the arms were fitted, and written without hands. The socket instrument was invented and designed especially for this case, which furnishes another illustration of the tact that is required to meet the needs of every individual case.

Continuation of C. Lush's Case.



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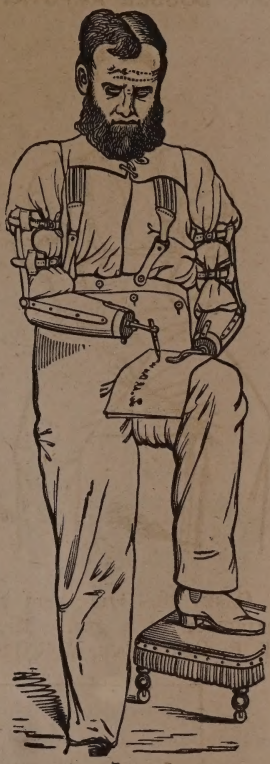

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This patient, before arms were supplied, had to be fed like a babe, dressed, undressed, &c. At the first meal after the arms were fitted he could use both knife and fork; and without the assistance of a second person change knife for crook, pencil, or other appliances: he can also use shovel, hoe, &c., when required.

One engraving represents the adjustment of the crook and ring; the other the pencil and the bookholder, with the patient in the act of writing as he would do when on the field surveying.

THE OLD HOUSE, FORDINGBRIDGE, SALISBURY, April 12th, 1878.

DEAR SIR,—C. Lush called on me this morning and went through his experiments. I am very much gratified at the successful results of your efforts on his behalf, and I think he feels that he has reason to, that his money is well spent, and that he is indebted to you not only for your hospitality, but also for the direct personal interest you have taken in his case. When opportunity offers it will be at any time a pleasure and satisfaction to me to recommend patients needing mechanical appliances to your care.

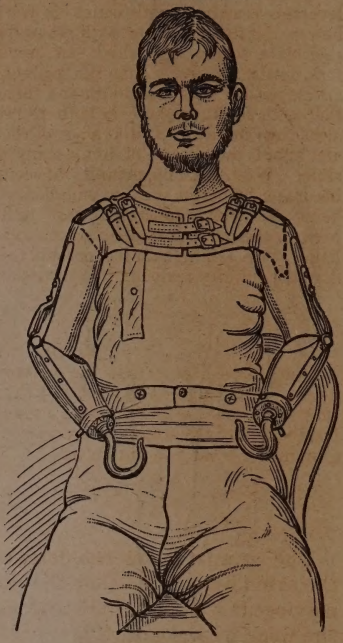
I am, dear Sir, faithfully yours,
T. B. RAKE.

To Mr. Gillingham.

DOUBLE AMPUTATION OF BOTH ARMS—THE RIGHT ABOVE AND THE LEFT BELOW ELBOW.

8

DOUBLE AMPUTATION OF BOTH ARMS CLOSE TO THE SHOULDER.



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CASE 27.—Lost both arms in a steam chaff-cutter. This is the third double amputation of the same kind—one hand is caught, the other is instant to the rescue and shares the same fate. The patient follows the business of greengrocer, and is provided with scoop and various appliances suited to his case one appliance for picking up articles opened by the means of a cord round the neck. (The stumps follow the dotted lines).

LONG LOAD, NEAR LANGPORT, December 15th, 1884.

Dear Sir, —In reply to your enquiries I will just say how far my artificial arms help me. I can feed myself and help myself for most purposes, can wheel a barrow, get about with my cart, change my knife for crook, or any of the appliances *vice versa*. I gathered a basket of sticks one day for my wife with my finger and thumb, &c. (this is the spring clip that is worked from the neck with cord). Very sorry for the other poor fellow, more unfortunate than myself. Hope this report will encourage him.

Yours respectfully,
HENRY BESGROVE.

CASE 28, Engraving 9.—I will here furnish a paragraph from the Local Press:

Mr. Gillingham has lately had his ingenuity most painfully taxed by a case which several years ago he regarded as so hopelessly difficult that he felt compelled to decline it. It is that of a young man who about eight years ago fell from a fore horse which

he was riding, under a reaping machine, the result being that both his arms were in an instant cut off, the one at the shoulder, the other only a few inches below. A worse case, from an operator s point of view, could hardly be conceived, as no stumps or leverage remained with which to work the arms if supplied. Mr. Gillingham has, however, fitted two arms with elbow-joints, raised by indirect action; in the wrist of each is a socket into which can be placed various appliances such as crook, knife or fork, loadstone, &c. This the patient manages to do, without aid, by taking up the article needed with his mouth and then placing it in the socket which is so constructed that with slight pressure it both receives and fixes it sufficiently firm for use. The arms thus fitted supply the place of the missing limbs so far as appearance is concerned, and afford the means of doing many things which otherwise would be utterly impossible. We had an opportunity of seeing to what an astonishing degree the mouth may become a helper in such an emergency; the patient was not only in prospect of soon being able with comparative ease to fix the appliances mentioned, but had for years been in the habit of so holding and guiding a pencil in his mouth as to write a very fair hand. Mr. Gillingham has probably done all that could be done in the case, but is no doubt, painfully realising how little, at the very best, can in some cases be effected.

PASTON, NEAR WALSHAM, NORFOLK, August 6th, 1885.

Dear Sir,—I now take the pleasure of writing a few lines; I am sorry I have delayed it so long. The truth is I thought I would try my arms and see what benefit they are to me. I find they are a great deal of use. But I fear I shall have to get the bone taken off the stump, the pressure is so great when I raise the arm. I am truly grateful for what you did for me.

Yours truly,
HENRY WRIGHT.

The stumps follow the dotted lines. The muscle had so shrunk when the arms were fitted that the point of the humerus was through. This may occur with any limb and necessitate a second operation to facilitate the wear with comfort.

The arms in this case were mostly of use in lifting from the shoulder, and they were raised at the elbow at right angles by a jerk from the shoulder and kept there by a spring similar to that at the back of a pocket knife, which spring acted on a square joint to keep it, a like jerk lowered it. Thus a patient with both arms off at the shoulder, could raise both his arms at right angles without assistance, and fix knife, fork, crook, ring, or any of the appliances, with or without the mouth, and without the assistance of a second person.

NATURAL DEFICIENCY OF BOTH HANDS.

10

CASE 29.—Master D———. Natural deficiency. Born without the left hand and arm three inches from the elbow-joint, the dotted line in engraving indicates the length of stump. The right arm deficient, the fingers in a line with the palm, leaving short stump of thumb, which is illustrated in the cast under engraving No. 24. In most cases of natural deficiency, nature is so compensatory that the patients can generally do more for themselves than the mechanist can do for them. I have seen several cases where patients were born deficient of both arms yet could write, draw, shave, thread needles, knit, load and fire a gun, and use a pair of scissors with their feet with facility. This is more than can be accomplished with the best artificial members ever constructed. This patient, previous to present arrangements, wrote well by holding the pen between his two stumps, in like manner he held a knife or fork, or steering with his mouth.

The sheath on the cast of the right arm has an arrangement for fixing and using tools without the hand, so that they may be removed and replaced at will without the aid of a second person. The arrangement for fixing tools in the left arm is like the one represented in the case of C. Lush (page 28). Appliances—knives, forks, crooks, hand-vice, load-stone, hammer, &c. The right hand is so placed that it pronates and supinates like the natural hand, and the stump of the thumb is utilized so that things may be held and taken between the thumb and index-finger. The patient writes well with the hand though he has had but little practice.

Note.—The difficulty with most of these cases is, they can generally do more for themselves than the mechanist can do for them, and unless old enough to feel their position it is not wise to fit artificials till that age is come.

NATURAL DEFICIENCY OF BOTH HANDS (CONTINUED).

"We have just been favoured with an opportunity of witnessing another triumph of surgical skill on the part of our townsman, Mr. Gillingham. We have already had to record instances in which, through his clever treatment, not merely 'the lame,' but patients without legs, 'have been made to walk;' but these achievements, wonderful as they seem to us to be, do not, Mr. Gillingham says, tax his ingenuity so seriously as where both hands are wanting, which is the case with the nice, sharp lad of 15, on whom he has now so successfully operated. It appears that this youth was born without hands; the left arm being deficient about three inches below the elbow-joint, and on the right arm the fingers are wanting, about an inch of stump of thumb being all that was left. To the latter Mr. Gillingham has fitted an artificial hand, giving all the articulations of the natural, so that a pen or pencil can be held and used in the ordinary way and with considerable self-control; for harder work another arrangement is supplied by which a variety of other appliances can be used, the lad being able to change the one or the other at his own pleasure and without help. To the left stump an arm and hand are supplied by which a knife and fork or other instruments can be held, and either removed or replaced at will by the patient. The hand can be removed, for which case a socket is provided in the arm for fixing various appliances according to the special need of the patient. We have just seen some of these instruments in use, and remembering that there had been no possibility of practice till quite recently, were surprised at the facility already acquired. Of course, further practice will bring increased facility, if not pleasure, in addition to that which the restoration of the natural appearance of the hands must have given. We can quite understand Mr. Gillingham when he states that he would much rather have amputated cases to deal with than those of patients born without limbs, as the strange contrivances to which the latter are driven to help themselves, instead of helping rather hamper him, by making it more difficult for them to accommodate themselves to the requirements of the new circumstances in which they are placed. We hope that in this case, and all others taken in hand by Mr. Gillingham, he may realise all the success he desires, both for his own sake and for this—that success to him means a lessening of suffering to others.—*Chard and Ilminster News.*

TWO CASES OF DOUBLE AMPUTATION OF THE FORE-HANDS AND ARMS, WITH A CAUTION.

CASES 30 & 31.—Both sufferers, J. Y. and M. C., were under treatment about the same time, having both lost their hands and arms in steam chaff-

cutters, and were fitted with similar appliances to C. Lush, as represented in engraving 18. It is time that these ugly knives were shielded and guarded to prevent the fingers being drawn into the knives and feed. I have made more arms for working men, who have lost them by chaff-cutters, than from any other accident. They should be kept out of the way, and locked when not in use, where there are children.

EXCISION OF THE ELBOW JOINT.

CASE 32.—Major L.—The elbow joint in this gentleman's case was partly carried away by a bullet in a scrimmage with some of the hill-men in India, which injury led to the removal of the elbow-joint, the heads of the humerus and ulna being removed. This operation left a useful fore-arm and hand, but the joint being removed there was no power to raise the hand and fore-arm. To meet the case, an artificial elbow-joint was supplied in the form of two lateral steels, fixed to a sheath and jointed at the elbow. The elbow-joint was supplied with a lock By a slight motion of the arm it was raised to a right angle and locked, and by pressure at the side of the body the arm dropped at will. After the fitting of this apparatus the patient returned to India, joined his regiment, and entered into several engagements in the Afghan war.

NON-UNION OF THE HUMERUS, OR FALSE JOINT IN THE HIGHER ARM.

CASE 33.—Mr. Hawkins, plate-layer, on the Great Western Line (Taunton). The arm in this case was crushed by accident just above the elbow-joint, the bone so severely shattered that it never united; to save amputation and secure a useful hand and fore-arm, a sheath was made to envelope the whole of the fore and higher arm, extending from wrist to shoulder. The elbow-joint was then set, and secured at a convenient angle, by two lateral steels, not jointed (as in the previous case referred to). With this arrangement, which was adjusted over the shoulder, the arm was set, and thus a good useful fore-arm and hand were secured, which is preferable to the best artificial that could possibly be produced.

No. 3, PORTMAN STREET, TAUNTON, July 18th, 1882.

DEAR SIR,—I have much pleasure in bearing testimony to the valuable service you have rendered to me. Four years ago I met with a railway accident which crushed my arm and caused a portion of the bone to be taken out above the elbow, when you undertook to make me a case, which has proved a success, and since then I have been able to lift nearly as much with that arm as I can with the other.

Yours truly,
J. HAWKINS.

I saw Mr. Hawkins the beginning of this year, 1887. The arm is not united. He still uses the sheath support and has good use of the hand.

NON-UNION OF THE HUMERUS.

CASE 33A.—Mr. Crocker, Bradford Crossing, near Taunton. In this case the Humerus had been un-united some time. The instrument is different to J. Hawkins in that it allowed the use of the elbow-joint. January, 1888, Mr. Crocker writes: – "The instrument answers well, and is of more real help than I could have anticipated."

TESTIMONIALS.

FOR

ARTIFICIAL ARMS AND HANDS.

Amputation above the wrist.

Case 34.

Cogan Hall, near Cardiff, February, 1868.

The hand I received of you I am perfectly satisfied with. I can cut my food quite comfortably, ride on horseback, drive, and do a great number of things with it. And above all things it hides the deficiency; it also fits remarkably well and wears very easy. It is so very useful, and so beautifully made, that language is far too light to express its value. I have written this testimonial with my Artificial Hand.

Yours truly,

To Mr. Gillingham. J. SURRIDGE.

Not long since Mr. Surridge sent the arm and hand to be repaired after wearing it for 18 years, with the following remark in his letter :— "You must not think me ungrateful for not writing for so long. I should have only been too pleased, if my means had allowed, to send you a cheque for £100 as a compensation for the benefit I have derived."

Amputation below the Wrist.

Case 35.

Shoreditch, Taunton, 14th Janury, 1876.

Dear Sir,—In connection with the arm and hand I have got from you I must express the highest gratification at the results I have experienced. I am enabled to use the knife and fork readily, to ride, to hold cards, to carry a heavy weight—all with the utmost ease by means of the various appliances you have invented. I have come a long distance—over seven thousand miles—from the Cape of Good Hope, and do not regret one single step of the way when I view the success with which I have attained the object for which I came—viz: the restoration, as far as possible, of the powers lost along with my hands. I must also speak in high terms of your extreme kindness during our short connection, and the zeal and goodwill with which you devoted yourself to get over the few slight hitches which unavoidably retard the complete fitting of the arm and hand.

I am, dear Sir, yours sincerely,

Mr. J. Gillingham. CHAS. C. LYON HENRY.

SECOND LETTER:

St. George's Street, Cape Town,
9th April, 1887.

Dear Sir,—You may be surprised at my not having written to you previously about the success of the arm you fitted on when I was in England some time ago, but I determined to give it a long and severe trial, so that I should have good grounds upon which to base any testimonial I might give.

I must now state that, after sixteen months' wear (it was first fitted on in December, 1875), I have found it to answer most satisfactorily in every respect; it has improved my figure wonderfully, one shoulder having been much higher than the other through the loss of the weight of the lower part of the arm. It is so natural in appearance that many persons have been upwards of a month acquainted with me before anything odd was remarked. The instruments supplied with the hand answer their several purposes so well—especially the knife and fork—that I can appear in the ball room or at public meals without any attention being attracted to what one would suppose would seem any awkwardness on my part.

Every piece has proved admirably fitted in every respect for its intended purpose; with the hook I used to run all over the rigging on board ship; with the hand-vice I can do all those little odds and ends that require to be done about a house with great facility and similarly with the rest.

I must conclude by expressing my deepest gratitude and warmest thanks to you under God's blessing for having been able so far to remove that disability I was afraid I should labour under for life when I met with the accident nearly three years ago, and trust you may long continue in your present course—doing good to mankind and more especially those in affliction.

I shall write you again in a mail or two, and for the present am

Yours gratefully,
C. LYON HENRY.

J. Gillingham, Esq., Surgical Mechanist, Chard, Somerset.

Born deficient the Hand at the Wrist.

CASE 36.

ASHFIELD, NORTH PETHERTON, Jan. 1880.

DEAR SIR,—Just a line to tell you I am getting on with my hand first class. I can crochet with it and do many things. It is a great improvement to my appearance; I can now go to church on Sundays and hold my books without covering my arm as before. My hand has been very much admired. I now thank you for the trouble you have taken and the attention shown me when at Chard.

Yours truly,
JANE FRENCH.

To Mr. Gillingham.

Natural Deficiency.

CASE 37.

4, LAMBHAY HILL, PLYMOUTH, Jan. 27th, 1881.

DEAR SIR,—I desire to inform you that the hand with which you supplied me answers every purpose to be desired in an artificial hand. I find it very useful in many things, but the natural appearance in public is a real relief.

I am, yours respectfully,
GEO. LARDER.

AMPUTATION THROUGH THE WRIST JOINT.

(Taking away the projecting end of the outside of the radius that the surface may be even). In September, 1880, Mr. F. R. Cross, F.R.C.S., of (Clifton) Bristol Infirmary, late of King's College, London, came to consult me on various operations, especially that of Amputation through the Wrist Joint. It was an operation he had long advocated, but had met with opposition both from surgeons and mechanicians whom he had consulted; and it was argued that it would place great difficulties in the way of a mechanist in fitting an artificial hand. The advantages Mr. Cross wished to secure to the patient are not only a useful lever, but the pronation and supination of the hand. I here beg to say that I have treated similar cases, and see no difficulty in fitting a hand and arm to such a useful operation. There is one disadvantage—the arm at the wrist is not so symmetrical, but it is easily hidden by the dress or cuff, and is of no consideration compared to the advantages of pronating and supinating the hand.

Amputation below the Elbow.

CASE 38.

WEMBDON HILL, BRIDGWATER, May, 1880.

DEAR SIR,—I am very much pleased with the artificial arm; I should be able to do scarcely anything without it. Now I am able to shear 37 sheep a day, for which I get 9s. I can thatch and rick; I can pitch hay or corn. I pitched 9 load of corn from two until six o'clock, 40 stitch on each load; my master gave me 4s. for my day's work. I can reap the corn with the machine and do many things, for which I cannot be too thankful. Yours, &c.,

ALFRED WOODBERRY.
Farm labourer to Mr. Coggins, Wembdon, Bridgwater.

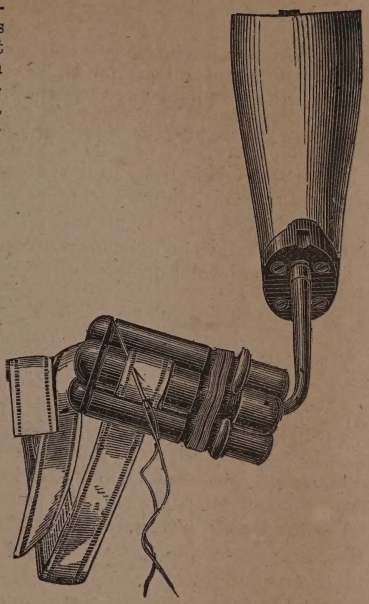
Since receiving the above Woodberry has been supplied with a second arm, the former being in use five years.

MECHANICAL FINGERS.

THIS ENGRAVING REPRESENTS THE MECHANICAL FINGERS INVENTED BY J. GILLINGHAM FOR A MACHINIST WHOSE ARM WAS AMPUTATED A FEW INCHES FROM THE SHOULDER.

"The instrument is fixed in the wrist and is removed, as you see, instantly on touching the spring. There are three rods corresponding to the thumb and the first and second fingers; the top one, over which the work is drawn, is moveable in any direction, and bound to the other two by a vulcanized rubber band: this band according to its tension keeps the work. On each rod is a piece of brass tube which revolves when the work is drawn. Over the two under tubes is slid a piece of vulcanized rubber pipe. The work is placed in the instrument precisely as it is in over the index finger, the vulcanized rubber holds the work just like the soft cushions of the fingers; as the person stitches she can draw the work, the rollers revolve, and thus they can hem and stitch at any length. Ladies who have lost an arm at the shoulder, above or below elbow, may now by the use of this instrument follow their favourite employment, which through their loss they may have long been deprived of."—*English Mechanic and Mirror of Science*, June 17th, 1870.

"We give an engraving of what we consider a useful and ingenious contrivance by which a lady who has had the misfortune to lose a hand may perform sewing."—*Scientific American.*



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Testimonial from the young woman these fingers were invented for.

CASE 39.

RAVENSTENDAL, WESTMORELAND, April 12th, 1871.

DEAR SIR,—I have got quite attached to the arm; I should not like to be without it. It wears quite easily, and I find it very useful.

M. NUGENT.

Amputated a few inches from the Shoulder.

CASE 40.

STAY MILLS, UPLARN, DEVON, May 3, 1873.

DEAR SIR,—The arm you made for me in 1872 answers all my expectation, and I can recommend every person that has lost an arm to have one. I have learnt to dress the millstone very well with it; both in the mill and garden I learn to do many things.

Yours truly,

To Mr. Gillingham. C. POPE.

Artificial arm above elbow.

CASE 41.

SUMMERLAND PLACE, HONITON, October 27th, 1885.

DEAR SIR,—Leticid Warren, the young woman to whom you supplied the hand and arm, wishes me to write, being interested in her case. The work which I have forwarded, she cut out and made. This will speak better than any words can do. She uses her machine and needle and is most painstaking and thankful with employment. She is indeed thankful for the skill you have displayed in enabling her again to partly earn her living. It is remarkable how she can do what she does.

Believe me, yours sincerely,

ELLEN COX.

The patient referred to is a widow with one child, dressmaker by trade. She lost her arm above elbow, which to her was a great loss, as the hope of her livelihood was gone. She was helped by kind friends to the hand, arm, and set of appliances to meet her case. One morning a beautifully made little undergarment came for my acceptance. I prize it much, as it only shows what perseverence will do under such adverse circumstances. In some cases where there is no necessity to get a living, the hand and arm may prove a failure, only being of service when called into practical use.

Artificial hand and arm below elbow.

CASE 42.

GURNSEY, FOREST, C.T., August 24th, 1883.

Dear Sir,—I am thankful to say after what I believe to be a fair trial of my harness, that it works well. I have passed through the hay harvest, and just going through the corn harvest, and must say that I have been much helped by the use of the mechanism. I am thankful to say my health is good. I have outdoor exercise in abundance. I shall remember with gratitude the kind attention which I received both from you and Mrs. G. during my short stay at Chard.

Yours truly,

P. MANGER.

Mr. M. is a grape grower, and with the appliances there was an arrangement for dressing and pruning vines.

Artificial arm below elbow.

CASE 43.

READING, February, 1887.

Dear Sir,—It is with much pleasure that I have to inform you that the artificial arm and hand gives great satisfaction to myself, also to my friends. The superior workmanship, strength, lightness combined with the simplicity of its mechanism is worthy of all the praise I can give.

Yours faithfully,

W. R. GODSELL.

With the appliances was supplied a holder for using a cricket bat, in which game Mr. G. excelled.

TESTIMONIALS FROM SURGEONS, &C.

I have continued the following testimonials in my new book, they were received from gentlemen 20 years ago, who gave me early encouragement in my new sphere. They have nearly all passed over to the great majority, but their kindly words are not the less valued—J.G.

From Sir W. Fergusson, Bart., Surgeon Extraordinary to H.M. the Queen.

16, George Street, Hanover Square, November 20th, 1866.

I have seen several pieces of Mechanism intended to remedy the defects of the human body, by Mr. Gillingham, of Chard, which display great ingenuity.

W. FERGUSSON, F.R.C.S.,
King's College Hospital, London.

47, Queen Anne Street, November 20th, 1866.

The Instruments shown to me by Mr. J. Gillingham seem very well adapted to their purpose, and to have been planned and made with great ingenuity.

GEORGE W. CALLENDER,
Assistant Surgeon to St. Bartholomew's Hospital.

24, Mount Street, Grosvenor Square, November 23rd, 1866.

I have seen and critically examined the artificial leg made by Mr. Gillingham, of Chard. In construction it is both simple and ingenious, and a mechanical work exceedingly creditable to its inventor.

F. C. SKEY, F.R.S.,
Consulting Surgeon, to St. Bartholomew's Hospital, &c., &c.

Mr. J. Gillingham, of Chard, has upon two occasions shown me mechanical appliances for removing the difficulties that arise from amputation of legs and arms. They are extremely ingenious, and in my opinion, are better adapted for the purpose then others I have previously seen.

BARNARD HOLT,
Senior Surgeon to the Westminster Hospital

33, Old Burlington Street, London, 7th February, 1867.

Mr. TAMPLIN presents his compliments to Mr. Gillingham, and has pleasure in stating that he considers his mechanical contrivance for a false leg admirably adapted for its purpose.

F.R.C.S. Royal Orthopædic Hospital.

I have examined several of Mr. Gillingham's Artificial arms and legs and can speak in high terms of their efficacy and simplicity. Not less adapted for their purpose, and even more simple in their construction, were his apparatus for certain diseases of the hip and spine.

C. HOLTHOUSE,
Surgeon to the Westminster Hospital, &c.; Lecturer on Surgery.

I have seen Mr. Gillingham's Artificial limbs, and they seem to me well contrived to answer the purpose contended.

SAMUEL SOLLY,

6, Savile Row, W., November 21st, 1866.

16, George Street, Hanover Square, W., March 23rd, 1866.

Dear Sir,—"Referring to your cases I rejoice to hear you are getting on apace; you have great ingenuity, which certainly deserves more encouragement than is likely to be got at Chard.

Yours faithfully,

To Mr. Gillingham, Chard. WM. FERGUSSON.

In February, 1880, I waited on Sholto Vere Hare, Esq., of Knole Park, Gloucestershire, to take a cast and mould a surgical splint for angular fractured thigh, see dotted lines B, engraving 16 After the work was executed, Mr. Hare said he had been recommended to me by Sir James Paget, who appreciated my skill in the treatment of my patients. "I should like to give you the extract from his letter to me, which I think you well deserve, and you can couple it with my name."

1, Harewood Place, Hanover Square, London, W., 6th February, 1880.

"Mr. Gillingham, of Chard, a very ingenious man, could, I believe, make whatever is wished for in moulded Leathern Splits, &c., &c."

To Sholto Vere Hare, Esq. JAS. PAGET.

British Medical Association, Bath Meeting.—"There is one thing I will say of Mr. Gillingham, we can believe in him and what he does is thoroughly practical.'

G. W. CALLENDER.

Aberenig House, Talgarth, R.S.O., Breconshire, April 23rd, 1874.

Sir,—The artificial legs manufactured by you for my patient, Mr. W. Jones, of Brecon, whose both legs I amputated immediately below the knee-joint, in May, are alike admirable in design and execution. They far exceed my expectation, and enable the lad to walk in comfort without a stick.

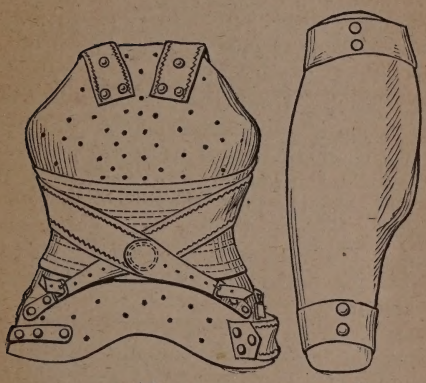
It further affords me much pleasure in bearing testimony to the great ingenuity displayed by you in the foot supplied to Mr. Edward Howells, of Trevend College, near Talgarth, on whom I performed Symes' operation some years back. He walks any reasonable distance with ease and only the slighest limp.

Yours truly,

T. EDWARD WILLIAMS.

MR. GILLINGHAM'S FIRST SURGICAL SUPPORTS.

SPINE SUPPORT. HIP SPLINT.



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The above is the first moulded splint and the first spine support made by me. Engraved from photograph. These simple contrivances are my first introductions to Surgical Mechanism, and the beginning of all that has followed in this work.—J.G.—*See Introduction.*

THIRD SERIES.

MECHANICAL CASES.

INSTRUMENTS AND MECHANICAL APPLIANCES FOR FRACTURES, DISEASES, AND DISLOCATIONS OF THE HIP JOINT; PARALYSED LIMBS; INJURIES OF THE KNEE; CONTRACTONS, SHORTENING, &c., FRACTURE AND INJURIES OF THE LEG AND ANKLE, &c.

GILLINGHAM'S HIP INSTRUMENT.

"The accompanying drawing shows an ingenious and novel application for the relief of hip-joint disease, the invention of Mr. Gillingham, of Chard, whose ingenious artificial legs were noticed in "The Lancet" of November, 7th, 1868. The object of the apparatus is to enable the patient to walk without throwing any weight upon the affected joint, and this is accomplished by an accurately-fitted bucket, taking its bearing from the tuberosity of the ischium. From the bucket two steel supports pass to the heel of the boot (with a high heel if necessary), and thus when the patient stands, the weight of the body rests upon the instrument and not on the joint, though the movements of the latter are not interfered with. The supports are jointed at the knee. The instrument is said to be easily adapted, and to give the patient no inconvenience in any position he may assume."

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We have been at the pains, before admitting the foregoing into the columns of "The Lancet," to ascertain from three medical men that the apparatus has proved very efficient in their hands."—*The Lancet*, September 4th, 1869.

SUFFERERS WITH DISLOCATED HIPS; DISEASED HIP JOINTS; FRACTURED NECK OF THIGH-BONE; NON-UNION OF THIGH; WITHERED LEGS; PARALYSED LEGS; CONTRACTED AND DISEASED KNEES (WITH SIX OR SEVEN INCHES SHORTENING); PATIENTS WHO HAVE ONLY USED ONE LEG FROM THEIR BIRTH, IMMEDIATELY ON THE ADJUSTMENT OF THEIR INSTRUMENTS LAY DOWN THEIR CRUTCHES AND WALK.

Having previously brought out several useful inventions which have been pirated by others, I think it right to show the origin of my hip instrument, that there may be no mistake as to its being my own invention.

A patient (S. Bear) with fractured leg, under the treatment of N. W. Spicer, Esq, of Chard. In this case there was no union of the bone. After lying up some time, he was sent to the Devon and Exeter Hospital, laid up there some months, afterwards sent out as incurable. Mr. Spicer sent the patient to me, I fitted a leg-sheath to envelope the

leg and set the bone, the bearing being taken round under the knee or head of the tibia. To this sheath was attached two extending lateral steel supports, passing down through the heel of the boot, and taking the weight of the body off the fracture. Thus the patient was enabled to walk and work. In twelve months, leg restored, and the instrument laid aside (See Holmes' Surgery, Vol. II, p. 893).

Shortly after this, a professional gentleman taking a tour in the West, waited on me and inquired if I had done very much in the treatment of hip cases, and stated that the great want was an appliance that had not yet been produced. An instrument was needed to raise the patient from bed, keep up extension, and at the same time enable the patient to walk, as the extending splints, weights, pulleys, &c., confined the patient to the bed, and tended materially to weaken the general health. I saw what was wanted, and how to construct it; took my pencil and sketched the principle of the instrument required at once.

The Hip Instrument is an accurately fitting thigh sheath, so fitted as to take its bearing round the sitting, the point of fulcrum being the sitting bone The same kind of extending or sliding lateral supports that I applied to Bear's case to lift the weight off the fractured leg, I attached to the thigh sheath, which extended to the heel of the boot, allowing free action of the hip, ankle and knee (when necessary), thus keeping up any amount of extension and taking the entire weight oft the hip-joint In every case, after proper adjustment of the instrument —it mattered not how powerless the limb—the patient could stand and walk at once What I needed now was some case to prove my invention, which I will further explain and illustrate.

Case 44.—The first patient presented to my notice was a lady, a patient of W. Parsons, of Godalming, Miss L——, of Tiltham's House. In almost all affections of the hip-joint, the first symptoms are experienced by pains in the knee-joints and involuntary action of the limbs. In this case there was a two-fold difficulty; a severe contraction of the knee caused by a spasmodic action of the muscles. The contraction was so severe that an ordinary splint was smashed up like tinder. My Hip Instrument was fitted, and springs acting on eccentric at the knee, pulling a strain of nearly 80lb. to overcome the contraction. These were worn with comparative ease. A cork boot, to make up for shortening. In six or seven weeks the contraction was got over and springs removed; in as many more months the leg brought down, cork boot removed and an ordinary boot supplied. In less than two years the limb was restored and the instrument laid aside.

Godalming, September 13th, 1869.

Dear Sir,—I shall always be glad to speak of your Hip Instrument as a most successful appliance.

Yours truly,

To Mr. Gillingham. W. PARSONS.

Tiltham's House, Feb. 1st, 1869.

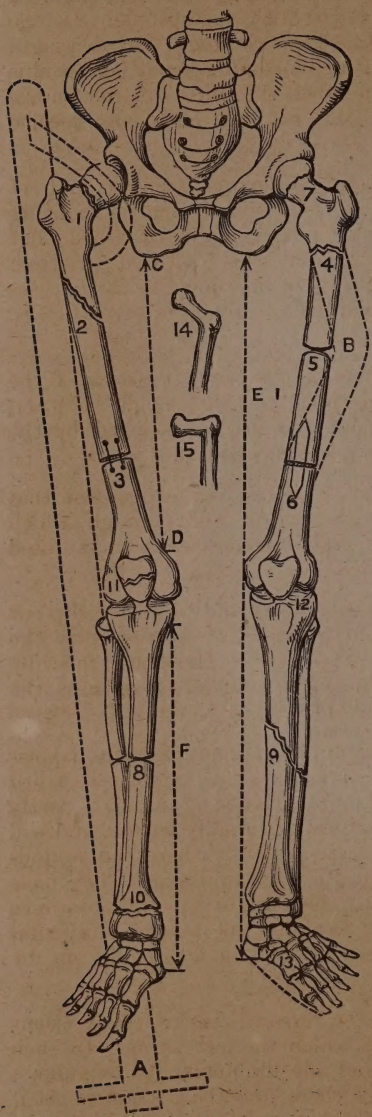
Dear Sir,—I have much pleasure informing you that the support you made for my daughter answers admirably; she is the astonishment of all her friends to see with what ease she walks and without the least fatigue.

C. L.

To Mr. Gillingham.

MECHANICAL CASES EXPLAINED AND ILLUSTRATED.

THE ENGRAVING ILLUSTRATES THE HIP-INSTRUMENT.



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Engraving 16 is supplied with a view to explain the different kind of fractures that come under treatment, and to which the instrument is applied. In cases of fracture of the thigh and diseases of the hip-joint. The limb is generally fixed in a splint (A) firmly securing the foot (with a cross piece to prevent the limb turning in bed), and kept extended by a perineal band at the hip, in this position the limb is fixed until the fracture is set and union secured. In case of disease or softening of the bone, a sandal is placed on the foot to which is secured a weight acting over a pulley at the foot of bed to keep up the necessary extention, until the patient is sufficiently recovered to take to crutches. While on crutches an iron patten is often fixed to the boot of the sound leg to raise the patient and allow the affected limb to swing, until sufficiently recovered to bear weight or use some appliance. In cases of fracture or disease, where the limb is powerless, but convalescent, an instrument is fitted (engraving 15) and constructed to take its bearing from the sitting bone in the line E through the heel of the boot. Thus by the extention and adjustment of the instrument from this bearing, the whole weight of the body may be taken off any kind of fracture from above the knee even to the fracture of the neck of thigh bone. Not only so, but in cases of disease and the softening of neck of thigh bone, the hip-instrument is equally effectual in taking the weight off the affected part.

The two legs represent two pillars supporting the upper structure, if you remove one pillar, or leg, and place a prop in the line E it becomes an equivalent until the limb is repaired or restored and if never restored it is almost an equivalent. The figure 1 marks the fracture of the neck of thigh bone. This most frequently occurs with aged people. In age the thigh bone sinks at the neck from an obtuse angle (14) to a right angle (15), this accounts for some of the shortening in old age, and is more liable to fracture for want of toughness or animal matter in the bones. With a young person it is different, the bone may become wrenched or dislocated.

The difficulty in these fracture cases is to keep up extension and set the bone, the latter being like a piece of chalk with no matter to bring about union. The patient is hopeless so far as union is concerned; but the hip-instrument meets the case: prevents the fractured part from grating and the end of thigh-bone playing up and down in the muscles when walking. Examples of this fracture are given in several cases. (71 and 72).

In cases of hip disease and affections of the joint, the neck of the thigh-bone (7) sometimes softens and sinks to a right-angle (15) and beyond it. This weakness may continue and may be assisted by the hip-instrument, and the deficiency made up by cork-boot.

In some cases the capsular ligament is injured—the ligament that connects the head of thigh-bone to the socket and through which nutrition is supplied to the bone; the limb becomes weak and stunted in growth.

In cases of infantile paralysis the hip is loose and will often slip out of the socket as in some cases particularised. Not unfrequently the head of the thigh-hone is forced from the socket in rheumatic fever by the enlargement and filling-in of the socket. In all these cases the hip instrument is effectual in rendering aid.

In some cases of disease the head of thigh-bone becomes honey-combed and cemented to the socket or pelvis—this is what is called anchylosis. In these cases walking is more difficult, as an axis is partly made of the spine. In some cases wounds continually appear, and will until the disease has spent itself. I have patients where the wounds have been continually open for 10 and 15 years or more. They have been wearing instruments the whole of the time, and to all appearance enjoy good health, the affliction being local and not touching any vital part. Some of these cases are constitutional, some brought on by accident.

Dislocation of the hip. This may be forward, backward, or otherwise, and indicated by the direction in which the foot turns. In such cases the patient has to be put down and the limb extended by pulleys. It takes a good jerk to put it out and there must be a strain to get it in. Where the case is hopeless the hip-instrument meets the case, and the deficiency is made up by high boot.

Now refer to the engraving. Fractures 3, 5 and 6 illustrate non-union of the thigh-bone and the means employed to bring about union. Sometimes the ends of the bone will callous and round off as at 5, or a piece of fibre may get between and prevent it. In such cases the patient is put under chloroform, the two ends of the bone rubbed to break the callous, set up irritation and induce union. When this fails the ends of the bone may be cut off and re-set. If this fails the ends of bone cut off (as at 3) and wired together with silver wire, or the thigh-bone plugged with ivory (as at 6). With all these contrivances there may be no union, and if there is no union matter the surgeon cannot put it there. Then the patient has to be handed over to me for mechanical aid. The sheath sets the facture and the instrument relieves the limb sustaining the weight.

Fracture 2 is an oblique, difficult to set on account of the contracting muscles; and the necessary amount of extension to be kept up by splint A. Any loosening of the band at the hip will let the thigh out in the direction of the lines B. Fracture 5.—This was the case with S. V. H.

Fracture 4 is the most simple fracture to set, as it is effected without shortening the limb.

The most remarkable case of fracture that has come under my notice was that of Mr. Luffman, of Milborne Port—spontaneous fracture of the thigh-bone in apparently strong and healthy subject. It was supposed there was some suppuration going on. Without warning the bone broke in two from the powerful contraction of the muscles. This necessitated the amputation of the leg, and in due course Mr. T. Bryant, of Guy's Hospital, sent the patient to me to be supplied with an artificial leg.

Fracture 8 illustrates non-union of the leg. The fracture is set by an accurately-fitting sheath and extension kept up under the head of tibia (in the line F) by means of two extending lateral supports—as in the case of S. Bear, page 42. The fractures 9 and 10 are supported by similar means when weak. Not unfrequently diseased bone is taken from the leg, and where the periosteum is left the instrument is of service till new bone has formed. 11 —Fracture of the patella. Treatment illustrated on another page. (See knee-cap). 12.—The lunar cartilages which form wedges under the front of knee. Sometimes these will scale off, the senovial fluid gets under, and they become floating cartilages. Treated of elsewhere. (See keep-cap).

Having explained the various fractures, will now pass on to the mechanical cases and the results of treatment.

Case 45.—The second patient treated by the Hip Instrument was Miss P——, late of Devonshire Buildings, Weymouth, patient of the late W. J. Smith, Esq., Weymouth. Miss P—— had been laid up some seven years, lying for the last four years on a couch. On the adjusting of the instrument, she could stand, took my arm, and instantly walked

across the bedroom. Six weeks after I visited her and said, "You may now try the stairs." She walked up and down stairs. We then took a walk and for the first time for many years, this lady, with my arm, walked from nearly one end of the pier to the other.

These facts became known to the *Lancet*. The medical gentlemen attending the case were communicated with by one of their medical staff and an article appeared on it in the *Lancet*, September 4th, 1869.

Extract from Mr. W. J. Smith's Letter.

WEYMOUTH, August 12, 1869.

DEAR SIR,—. . . The instrument is quite a success in the case of my patient.

Yours, &c., W. J. SMITH.

To Mr. Gillingham.

SYMONDSBURY, August 25th, 1869.

SIR,—It gives me great pleasure to state that the "Hip Instrument" is a most decided success, and I think most fully realizes all your expectations, as it is even of more assistance to me than I anticipated. I am, Sir, obediently yours,

J. P.

I have left the earlier cases in this edition as the earlier proofs of the success attending the first application of the Instrument and the success that has continued through a long line of sufferers is shown by examples of more recent date.

CASE 46.—A lady from Melbourne, Australia, came over for treatment under W. Lyon, Esq., George Street, Glasgow. In this case the hip had been forced from the socket, after rheumatic fever, and the socket filled in. A Hip Instrument, after my design, copied from the *Lancet*, was fitted to this lady by a Glasgow Mechanist, but it failed. This I knew nothing of until I had put my patient right. Here, let me say, lies the great secret of success—in a perfect manipulation and adjustment. Instruments and splendid mechanism, however well executed and costly, are only waste materials if they do not meet the needs of the case. As soon as I had fitted my own invention, which was a failure in the hands of another, my patient could walk with comparative ease and the sinking motion caused by the trocanter of the hip playing up and down in the muscles ceased.

CASE 47.—Miss A., Romsey, patient of H. Sainsbury, Esq., of Romsey. I saw the patient in bed, where she had been for some months. There was a great deal of spasmodic and involuntary action of the limb, so much that the limb leaped about and seemed uncontrollable. She could not stand except on one leg, and that with assistance. This young lady was brought from her bed to my house; on adjusting the instrument, she could walk the room, and in less than a quarter-of-an-hour, walked up and down stairs. Before I proceed further, I must be understood.

An instrument—an external mechanical appliance—does not cure an affection ; it helps to cure indirectly and by medical aid, and also assists walking when the limb is rendered powerless by accident or otherwise.

Case 48.—Miss P—— (the address I withhold from the description of the case). This young lady had been laid up for many years, but could walk on crutches. Some three or four wounds were running from the hip-joint when I fitted the instrument. On the adjustment of the instrument, the crutches were laid aside, my arm was taken and my patient walked a quarter-of-a-mile or more.

Here let me again say (as I wish to throw out all important suggestions as I go on for the encouragement of others) the surgeon has some times to exercise his judgment what course to take with his patient, whether he shall lie in bed for years (for hip cases are long cases), until prostrated by weakness from confinement, or whether when the joint has become less inflamed, he shall raise him up to walk though the wounds may be running and assist him to take exercise and fresh air by means of an instrument.

Case 49.—Mrs. Lano, Dressmaker, Wareham. In this case the hip was out of the socket, and swung useless like a pendulum—so useless that the limb had been carried in a sling round her neck for 20 years, and she had walked during that time by the aid of a crutch. (The case is represented in wood-cut No. 17 engraved from photograph). Shortly after the instrument was adjusted, she took my arm and walked to her hotel, and the next morning walked back to my house to breakfast. In this instrument there is no joint at the knee, the knee being a little contracted the weight falling behind the natural knee-centre.

Wareham, August 10th, 1875.

Dear Sir,—I am truly thankful for the instrument you made me, I have worn it every day ever since I saw you. I can walk with perfect ease, and cannot tell you how thankful I am to have it.

Yours truly,

To Mr. Gillingham. R. LANO.

Some years after I supplied Mrs. Lano with a second instrument—April, 1887. They have now been in constant use for fourteen or fifteen years, but the limb without the instrument is as powerless as on the first day fitted. This instrument assists, but cannot restore.

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CASE 50.—Mr. Ball, aged 20, came over from California; he had not walked from birth except on one leg and crutch. As soon as the instrument was adjusted, the crutch was laid down and he could walk at once without assistance. I will now mention a little incident; I was living at the house of my original business, which had been established some forty years since by my parents. Mr. Ball wished to see Mr. Gillingham. I was at my work and had been smiting at the forge, being in the habit of turning my hand to anything that had to be done. I came in my working dress. "I wish to see Mr. Gillingham?" "I am the person in request." I was looked at with astonishment and on looking around he said "I must have come to the wrong place." "Oh! no, sir, it is quite right. If you call on a practical man in his working hours, you cannot expect to see him in his frock coat." On examining his son's case, I found hip from the socket, limb withered, knee contracted, and six-inch shortening. On Master Ball's subsequently walking off without his crutch, he said, "I should never have believed it possible when I saw you." Why was this? Unless now-a-day a man puts on appearance and stuns the people with a good stiff price, they fancy there is no reality in the thing.

As an example, I had in February, 1880, three patients with affected and dislocated hips, they had all been under the treatment of the same bone-setter (who like others have their successes and failures); nearly two years had rolled away in each case and they were as far from walking without crutches as ever. One had been on crutches 15 years and charged by the bone-setter 100 guineas, the second on crutches 13 years charged 10 guineas, the third on crutches about two years and charged 10 guineas. Now I, by mechanism, enabled all three patients to walk without crutches in ten minutes. They were all here at Chard together.

A PROBLEM FOR PERPLEXED PATIENTS.

A case I now narrate is an illustration of No. 50, though I did not treat it. This patient had broken off the neck of the thigh-bone. She availed herself of the first of surgical skill and opinion in London, and took a journey afterwards to Scotland to see the late Professor Simpson. Sir James Paget, with others, were all unanimous in their opinion that she would never walk again. The lady came to me. I visited her and examined her case with a professional gentleman. I told her I could enable her to lay down her crutches at once and not need them again. On my leaving she said to the doctor, "I cannot understand it; if the first of medical skill in the world cannot make me walk, how can a country bootmaker do it."

In reply to the question put to the doctor—such cases are beyond the reach of the best surgical skill (or even of bone setters) and are rather for skilful mechanical treatment. A skilful surgeon is proficient in his own branch of study, but he does not assume to be equally skilful in mechanical science if he has not made it a matter of study and practice. For example, when I fetched the youth from Lincoln, without legs, I

was asked by several professional gentlemen how I was going to make the youth walk. It was a difficulty to them, but it was no difficulty to me. "If you succeed," said Mr. Callender, of St. Bartholomew's Hospital, "I shall invite you to London." In a few weeks the youth was walking with me in the streets of London, and introduced at the Clinical Society by the above-named gentleman.

The following case is another example where the skilled surgeon leaves the mechanical treatment of his patient to the mechanist.

18.

Case 51.—W. S——, Esq., Engineer, late of Halstead, and at the time of his accident, consulting engineer, to the City of Paris. Mr. S. was smashed up in the Great Eastern Railway accident. His injuries were of such a nature that his life was despaired of for months, and had not the first of medical skill been brought to bear on his case he could not have survived. Mr. S. was under the care of the late Sir W. Fergusson, B. Holt, Esq , and others. Sir W. Fergusson—who was always exceedingly gentlemanly and kind to me (also many other leading gentlemen in the town)—sent Mr. S. to me when he had sufficiently recovered the shock, but gave me not a gleam of hope of being of much practical good, yet I might assist. In addition to various compound fractures, this patient received injuries in the dorsal and lumbar regions of the spine, which resulted in total paralysis of the left leg. On my first examining him, I told him that I would enable him to lay down his crutches in ten minutes. Now in this case there was not only a hip-instrument required, but a spine support connected with it. In less than five minutes after the mechanism was fitted Mr. S. walked about my workshop without assistance. To see him in the street you would not know there was anything the matter with him. He enjoys life tolerably well, can resume his sports—fishing and the like exercise—and take a tour on the continent in perfect confidence, yet out of his mechanism he is powerless. Sir W. Fergusson, among others, congratulated me on my success as being a most remarkable mechanical triumph over seeming impossibilities. The case is represented in engraving from photograph (No 18). In this instrument will be observed a lock, to lock the knee standing, and a spring acting on an eccentric to flex the foot. Every case requires some modification, though the principle of extension is the same in all cases.

SPITTLEHAUGH, WEST LINTON, 4th October, 1873.

Dear Sir,—It gives me great satisfaction to learn that you have been so successful with Mr. S. case. I shall take great interest in looking at your good work on my return.

Yours faithfully,

To Mr. Gillingham. W. FERGUSSON.

Shortly after the mechanism was fitted, Mr. S. was met at Naples by a lady and gentleman of Chard, and they ascended Mount Vesuvius together. This mechanism has now been in constant use for fourteen years.

CASE 52.—E. J. Smith, Esq. (Old Auchendrane, New Kilpatric, Glasgow). Mr. Smith had used a crutch with one leg for 24 years. In this case the hip was from the socket. Leg undeveloped, knee contracted, and 7-inch shortening caused by accident some 25 years ago. Immediately on the necessary manipulation of the instrument, the crutch was laid down, and Mr. Smith enabled to walk. Mrs. Smith, who accompanied her husband, had never until now known him off his crutches.

In 1871 Mr. S. paid another visit, and had an outfit of three sets of instruments and boots. (Here let me suggest, that when the patient can afford it, it is always wise to have a second instrument, to provide against accident or repair.)—J.G.

March 2nd, 1875.

Dear Sir,—I am quite an adept at my instrument now, and can walk a couple of miles at a stretch without much fatigue. In fact, I consider myself quite a credit to your most ingenious mechanical and surgical skill.

Faithfully yours,

To Mr. Gillingham. E. J. SMITH.

CASE 53.—Mr. Stear, Holloway Street, Exeter. Left leg paralysed and partly dislocated at the hip, right leg slightly affected, on crutches 7 years. His family doctor considered it a piece of folly to have anything done—his case was impossible. On the fitting of the instruments, Mr. Stear laid aside his crutches, took his son's arm, and walked from the house into the yard.

14, HOLLOWAY STREET, EXETER, 21st. Oct., 1875.

Dear Sir,—It affords me much pleasure to testify to the great benefit I have obtained by the use of the excellent appliance you supplied me with last year. In the year 1868 I had a very serious illness, caused by inhaling poisonous air from defective drainage, and which resulted in the loss of the use of my legs, but by the use of hydropathy and galvanism I regained power to use crutches, which enabled me to go short distances. When the weight of my body was on my crutches I could swing my legs forward. Last year you supplied me with the appliance to be worn to both legs which enabled me to stand erect and walk slowly by the aid of two walking sticks; I am now able to leave off the appliance from my right leg, having gained power in it by its use, and am hoping by perseverance and God's blessing on the means used, yet to be able to walk without the help to my left. Should any one be suffering from the loss of power, I strongly advise them to consult you on their case as you honestly tell them if you think you can do them good or not, free of cost. My case was a very severe one, and when I was first seen after putting on the appliance, my friends could scarce believe it was me, the change in my appearance was so great.

I am dear Sir, yours truly,

To Mr. Gillingham. E. J. STEAR.

CASE 5 .—Mr. Ironmonger, jun., Axminster Railway Station, used a crutch 14 years. Hip partly dislocated, limb undeveloped and partly powerless, on the fitting of the instrument, the crutches were laid aside at once, and he could walk a tolerably good distance without assistance. In 1887 Mr. Ironmonger, now of Queen Street Station, Exeter, was fitted with the second instrument, after using the first 10 years or more.

CASE 55.—Miss Alford, dressmaker, Alphington Street, Exeter. Without exception this was the worst and most complicated case I had ever met with. Miss Alford had used crutches for 29 years. In this case, one hip was from the socket, knee contracted, undeveloped, and shortened, the other leg, arch of foot broken in. On adjusting the instruments, she could walk at once without the crutches.

CASE 56.—A lady, aged 20, of London, moving in one of the higher circles of life, had not walked from childhood except with the aid of crutches. This was far worse than case 55. Here I was brought to a stand, and could promise no help. In this case the right hip was dislocated, limb undeveloped, knee contracted, and 7-inch shortening, the left leg was touched with paralysis. Means of locomotion, swinging herself on crutches, and catching on the point of great toe. I stated, fairly, my opinion and said I would try what I could do, if they liked, but on these conditions—if I failed, there should be no reflection on me, and I should be paid just as if I had succeeded, my time and my talent being my capital. I was thanked for my honesty, and the young lady came down when I was ready for her. In five minutes the crutches were laid down, and she walked round the table without them. Now this lady had been treated by the first mechanists on the continent without any satisfactory results, and by the first of professional gentlemen.

Extract from Letters.

"To Mr. Gillingham,—I am getting on very well with my support, and can walk about the house easily and for a short distance out of doors. I can wear it almost all day without feeling tired, and everybody is much pleased with it."

Yours truly, E.W.

CASE 57.—Mr. Langdon, managing clerk to Mr. Culverwell, corn factor, of Taunton. This case led to case No. 56 as follows:—Mr. Langdon had been six years on crutches, and catching himself on the points of his toes. On the application of the instruments, as in the other case, the props were laid aside. Mr Langdon returned to Kingstone to spend his Sundays, and upon being seen to walk into Church on the Sunday after his visit to me without his crutches, to the astonishment of those who knew him, was addressed after the service by a lady inquiring into the wonderful change. This lady was the aunt of case 56, who at once called the attention of her niece to me, which led to the results as narrated before. Mr. Langdon still uses his instruments and has done so for 12 years.

CASE 58.—Mr. Brown, of Horton, Yorkshire, laid up, and used a crutch 14 years. The crutch was laid aside, and walking without the prop was commenced immediately on the adjusting of the instrument.

CASE 59.—A. Darke, Esq., manager of the West of England Bank at Exmouth. Fourteen years on crutches, caused by some lesion of the hip-joint; there was three-inch shortening, with partial power to walk: on the application of the instrument the crutches were soon laid aside.

EXMOUTH, April 2nd, 1882,

Dear Sir,—You will be pleased to know that the instrument is answering very well, and has been very little trouble to me at all, and is now becoming quite comfortable.

Yours truly,
A. J. DARKE.

Not long since Mr. Darke sent me a similar case. The same success in the treatment followed.

CASE 60.—Miss Beaver, late of Teignmouth. This young lady had been laid up some years with an affection of the hip-joint. On fitting the instrument she could walk across her bedroom and though there is some considerable shortening, she can walk in her instrument a distance of five miles. Patient of J. A. Magrath, Esq., of Teignmouth, who sent for me to treat the case under his care.

This patient has been supplied with three sets of instruments, over a period of 14 years, to keep the necessary pace with growth and still continue the support.

CASE 61.—Mr. F. E. Abbott, Charlton, Horethorne. Could not walk from birth, infantile paralysis of right leg and loss of right arm by amputation. Enabled to walk without crutches immediately after the instrumeut was adjusted.

WATERLOO CRESCENT, CHARLTON HORETHORNE, September 1st, 1880.

Dear Mr. Gillingham,—I enclose my photo for your acceptance, and beg to say that I have used my instruments every day since the first with success.

Yours gratefully,
To Mr. Gillingham. F. E. ABBOTT.

Mr. A. has now used his appliances, with success, for eight or nine years.

CASE 62.—J. Nobbs, son of W. Nobbs, evangelist, Gloucester. Ten years on crutches from weak hip and undeveloped leg. He could walk a good distance without crutch on fitting the instrument.

6, GOODYER STREET, GLOUCESTER.

Dear Sir,—My boy is delighted; he hardly knows what to do with his hands, having had them filled up with the crutches so long; yesterday he had on the instrument about seven hours, and walked a good deal. The instrument does not hurt him scarcely anything. I can see he will walk faster when used to it.

Yours truly,
W. NOBBS.

Mr. N. has been supplied with the second instrument after using them many years.

CASE 63.—Miss Butcher, on crutches from a child, thrown by the nurse and the hip-joint injured. The crutches were laid aside on the fitting of the instrument.

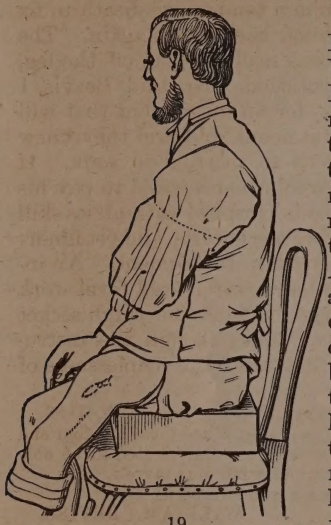
6, WEST VILLAS, ISLINGTON, LONDON.

Dear Sir,—I must thank you very heartily for making me walk as I do, I cannot do without my stick yet, but I suppose I shall in time.

I am, yours very truly,

M. BUTCHER.

NON-UNION OF THE THIGH-BONE.



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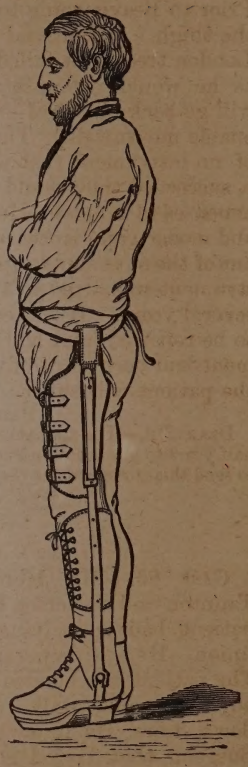
CASE 64.—C. Lock, Crawford, Wiveliscombe. Fracture of the middle of the thigh. Laid up twelve months and no union; he was removed to Taunton Hospital. Mr. Alford, jun., laid aside the muscles of the thigh, cut off the ends of bone and set the thigh again. Lock lay again another twelve months and no union. The limb was useless, with false joint in the middle of the thigh; the muscles wasted and flabby and the leg dangled as if upon a string. He was sent to me by Mr. Alford. On the fitting of the instrument he laid down his crutches in the presence of the medical gentlemen then at the hospital, and walked the ward without assistance. For nearly six years this man had been getting his living by working in a quarry and at draining work and had worn out several boots. He has since been fitted with a second instrument given to him by the Wiveliscombe Board of Guardians. Lock's case is represented in engravings 18 and 19, taken from photograph. In this case an accurately fitting sheath is made to fit the thigh and fix the bone and the instrument, so adapted that it can be removed from the sheath aud that it may be worn in bed. A cork boot makes up the deficiency of the cut-off bone. In January, 1873, Lock had his first instrument; in May, 1878, he had his second instrument; in August, 1882, he came to me for another cork boot. I found the thigh un-united and the limb as useless, without the instrument, as the first day it was



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fitted. In 1885, Lock consulted me about the third instrument, after 13 years service in his mechanism.

CASE 65.—Beviss, Perry Street, Chard. Thigh fractured at the higher third. The patient was under the treatment of two medical men but no union could be effected. Beviss was then sent to St. Bartholomew's Hospital, London, and placed under the treatment of a skilful surgeon, who put the patient under chloroform and tried to bring about union by rubbing the ends of the fractured bone together, but to no purpose. Prior to Beavis going to London I made him a temporary sheath to fix the thigh. I then said you will have to come back to me again. The London treatment failed and a suggestion was made to take off the leg, as he would not walk again without amputation. No, said Beavis, I will go back to Chard—to Mr. Gillingham—for an instrument that will enable me to walk. They questioned his statement, and said they knew of no instrument that would enable a patient so situated to walk. If it succeeded they would like to see it, and would be prepared to pay his expenses to London. Here is St. Bartholomew's Hospital with all its skill and modern appliances, surrounded by surgical mechanists, and yet ignorant of the most simple appliance—Gillingham's Hip-Instrument. An instrument was fitted to Beavis's case and he has now followed farm work several years. It was only a few months ago he sent the thigh-socket to be repaired (and had to lay up during the time) though the instrument had been in use five years. It just illustrates the helplessness of the patient without it.

DAIRY HOUSE, PERRY STREET, CHARD, Feb. 15th, 1888.

DEAR SIR,—The appliance you supplied me with has assisted me these last four and half years to get about and do my usual work on the farm. I feel pleased to be able to send this statement for the encouragement of any unfortunate like myself.

I am, dear sir, yours respectfully,
WILLIAM BEVISS.

CASE 66.—Mr. Herod. Lying at the time of treatment in the Taunton and Somerset Hospital. Fracture just above the knee. The patient had been lying in the hospital some time with no hope of union. He was very stout and the limb about the largest I ever treated. The patient was handed over to me. Shortly after the instrument was adjusted could walk without his crutches, even to going up and down stairs. On inquiry, I learnt from G. W. Rigden, Esq., the House Surgeon, that Herod got on well, and was enabled to walk away from the hospital.

Not knowing Herod's address, I wrote the lady in whose employ he was at the time of his accident. The following is a reply:—

COTHAY BARTON, KITTISHAM, NEAR WELLINGTON, October 7th, 1887.

SIR,—I am in receipt of your letter. Should have replied before, but had not heard anything of Herod for some time. He called to see me last week; he had then walked from Brampton, a distance of about eight miles. He told me the instrument answered well. I asked him if he felt any difference between his legs after walking that distance, and he said "None at all." It must be a great boon to him.

I remain, yours truly,
S. J. CAPE.

This case I did not treat, but give it to set forth its treatment. The young man was from Bristol. Thigh fractured in the middle; no union; passed under several courses of treatment; the last resource was to lay aside the muscles of the thigh and wire the ends of the bone together with large silver wire, sample of which he produced. (See engraving 16, fracture 3). This was ineffectual. After this he was sent to London, to a surgical mechanist, for an instrument. The instrument was well made, but the case was not studied. They had followed the old plan of a band round the thigh and calf, a lock at the knee, and a padded belt round the waist, no adaptation. The thing was useless, and having paid six guineas for it the poor fellow had no means of getting another. So what with an unsuitable instrument and a grating-wired thigh, his case was hopless, and, so far as I know, he is still without the needed help.

AFFECTION OF THE HIP-JOINT.

Case 67.—Miss J. M. H., Paignton, Devon. This lady had been laid up some years from affection of the hip, brought on by strain or otherwise. She could walk with the assistance of crutches, but could not use the leg. There was no shortening, no apparent inflammation, the limb well developed. Still it would not resist weight without much pain and weakness; this made it more difficult to treat. I attributed the pain of motion more to muscular tension and adhesion, from the fact that the limb had rested in one position so long. There was no doubt in my mind as to the patient laying aside the crutches and walking, provided she would put up with the pain and inconvenience of first wearing a hip-instrument. This she decided to do. The instrument was fitted and the patient walked, but with much pain. With the exercise of each day the hip was bathed with warm flannels and kept warm for the night. The muscles soon relaxed their tension, and the patient walked with more ease. I mention this for the encouragement of sufferers using instruments for like cases. A limb that has not been used for five, ten, or twenty years, though it may be partly paralysed, must feel the reaction, shooting, twitching, &c., on the first using of an instrument. Thus to bathe with warm flannels and keep warm is to stimulate natural action in a useless limb, and the irksomeness will pass off in a short time. I have never known (during my practice of 20 years) a single case where a sufferer has been injured by wearing these instruments.

In 1886 Miss H. paid me a second visit, with a view to having a second instrument, as she was thinking of going abroad. The ease and freedom with which she ascended the steps to my house (and walked without any assistance) was remarkable. She said "I am considered, Mr. Gillingham, by my doctors to be a miracle." On removal of the instrument, to take the necessary measurements, I found no shortening, limb well developed, but not the least power to stand—the weakness was still there but no disease. The following is a letter sent several years after using the instrument :—

DEAR SIR,—I am much pleased and satisfied with the great benefit I have received from your hip-instrument, which I have worn several years. With it I can walk easily and lead an active life, after being confined to bed for years. I shall always feel thankful I was induced to apply to you, also for your kindness and attention.

Yours sincerely,

J. M. H.

I regret to say since this letter my patient is laid up again, being probably too active.

CASE 68.—Dislocation of the hip. Several inches shortening. On crutches eight or nine years; the crutches laid aside on the first use of the instrument.

2, MANSTON TERRACE, HEAVITREE, EXETER.

DEAR MR. GILLINGHAM,—I am sorry I have not written to you before. I wished to give the instrument a good trial before I gave an opinion as to its success. I am glad to say it has answered in all respects. I can now walk into Exeter with comfort and little fatigue. I am, yours truly,

B. COTTON.

CASE 69.—Miss Clarke, Russel Street, Bath. On crutches eight years; used every kind of treatment suggested with the hope of reaping benefit, and gave up hopeless. Miss C. was met by a lady (a patient of mine) who had been on crutches seven years and had worn an instrument many years. The same success followed treatment in this case.

8, RUSSEL STREET, BATH.

DEAR MR. GILLINGHAM,—I would not be without my instrument, it seems so nice to be without my crutches. I suffer no inconvenience from it whatever. I hardly know what to do with my hands at times. All my friends are pleased to see me walking, and want to know all about it.

Believe me to remain, yours thankfully,

ANNIE CLARK.

Shortly after this Miss Clarke met a lady who had been laid up on crutches many years and sent her to me. The following is an extract from her letter. Before giving it let me say what I have repeated more than once in this edition—that most of my patients are sent by those who have received benefit and through recommendation; I do very little advertising.

2, QUEEN'S VILLAS, OLDFIELD PARK, BATH,

November, 24th, 1885.

DEAR SIR,—You will be glad to hear that I have become used to my instrument I would not like to be without it. It is a great boon to me. I feel much stronger in myself and can attend to my house duties better than I have previously done for years. I thank you most heartily for the great benefit derived from the use of your Instrument.

Yours truly,

EMILY SMALL.

FRACTURE OF THE NECK OF THIGH-BONE.

This accident more frequently occurs with aged persons. The head of the thigh bone enters the socket at an obtuse angle (see engraving 16). With age the bones become brittle for want of animal matter, and are more like a piece of chalk; not only so, the obtuse angle at the neck of the thigh-bone gradually sinks to a right angle, more like the top of the letter ⅂; this accounts for some of the shortening in old age, and the bone is more likely to break from fall or jerk. This accident rarely happens with young people. When the bone is broken off there is little hope of ever walking, on account of the muscular traction, which makes it almost impossible to set the bone; and well may surgeons say—who have never heard of Gillingham's Hip Instrument—"You will never walk again." By skilful mechanical means this difficulty is overcome. The weight is taken off the fracture and conveyed to the sitting bone, and extension at the same time kept up, so that the patient can walk immediately on the proper adjustment of the instrument. Examples as under.

CASE 71.—Mrs. B—— broke off neck of thigh-bone from accident. Patient of J. Parsons, Esq., Bridgwater; no hope was given. I was consulted, and at first declined on account of age. The lady of perseverance wished to make my skill a trial. The instrument was made and fitted, the crutches were laid aside, and with my arm she could walk the room and in a short time walk up and down stairs. After some months of use sufficient callous union was thrown out to enable her to do at times without the instrument, and I believe now it is dispensed with. (Since deceased.)

CASE 72.—Mrs. S——, of High Ham, broke off the neck of thigh-bone from accident. The hip-instrument was fitted, and the patient, with my arm and stick, could walk the room; the crutch was dispensed with, and in less than an hour she could walk up and down stairs.

I give these old standing cases as examples, having only treated four in twenty years.

My trial test with nearly all my patients, whether with legs or instruments, is to get them, before I leave them, to walk up and down stairs, and they generally all accomplish this during the first hour; if patients make any progress at all it is manifest almost at once. With aged patients like the above, if they have not some energy (which is generally wanting in advanced life) it is useless the mechanist making the attempt, his skill being unavailing without the patient's effort.

INFANTILE PARALYSIS.

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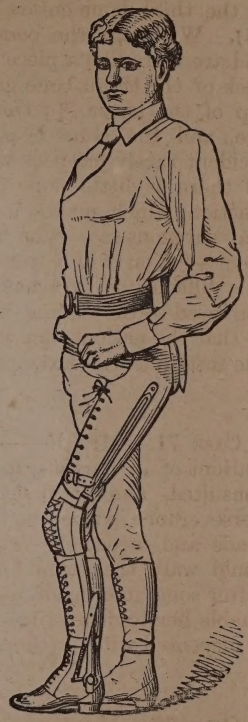

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CASE 73.—Mr. Roberts. Shepherd's Bush, London. The left leg in this case swings loose and lifeless from the socket. (The right arch of the foot given way.) The capsular ligament is so relaxed that the limb, from the hip, may be turned in any direction. Mr. R. had used crutches almost from infancy, but on adjusting the instrument they were laid aside, and with the assistance of a stick he could walk a good distance.

This patient was met in London by a gentleman, presented with my prospectus, and directed to come to me. He consulted his doctor and referred him to my prospectus, but he scouted the idea with contempt and regarded it as folly to think of it. Being thus discouraged, he delayed the matter two years and then resolved to pay me a visit; his

friends were against it, and his sister, who accompanied him to the station, said, "It is useless, for you will never walk off your crutches." On seeing him, I said, "Your case is a bad one, but not hopeless: I can enable you to walk without your crutches." The result I have given, and now give an extract from Mr. R.'s letter. I prefer to put my cases in this way, and give the incidents connected with them in order to encourage sufferers, and that they may see the amount of prejudice that stands in the way of their being helped.

DEAR MR. GILLINGHAM.—My silence has, doubtless, led you to believe that I am extremely negligent. I am glad to inform you that I improve with my instrument, and suffer no inconvenience from it. I can walk about London without fear or timidity. I have recommended several to you who have assured me they will come. . . . .

Believe me to be yours sincerely,

W. ROBERTS.

Three years later I received the following letter from Mr. Roberts:—

142, PERCY ROAD, SHEPHERD'S BUSH, LONDON.

DEAR MR. GILLINGHAM.—It is such a long time since I had my instrument, but the recollection of yourself and family and my pleasant stay at Chard is still fresh in my memory. With regard to the instrument, you will be pleased to hear I am steadily improving, and now enabled to walk in ease long distances with comparative little fatigue. The instrument is in good condition after three and a half years' wear, and it has not required any alteration. It has kept firm all the time, and reminds me of the poem of the book: "For men may come and men may go, but I go on for ever," &c.

Believe me, yours sincerely,

W. H. ROBERTS.

CASE 74.—Mr. Waterman, Stoke-under-Ham. This young man was many years on crutches; on the adjusting of the instrument they were laid aside at once. The same kind of case as Mr. R. The affliction in these cases being local, and arising from lesion of some kind, does not, as a rule, affect the general health; patients thus situated enjoy life tolerably well apart from the inconvenience.

About six years after the first instrument Mr. W. was supplied with a second.

CASE 75.—Infantile paralysis. Miss E. Martin, Exeter. On crutches from childhood; the crutches were laid aside on the adjustment of the instrument. (Here I would add, taking mechanical cases as a whole, there are more cases of infantile paralysis than any other. Causes of same see forward).

(Late of) 47, Victoria Road, Exeter.

Dear Sir,—My daughter is much pleased with her instrument; she gets on very well indeed. The neighbours are much astonished to see how well she gets about.

Yours truly,

E. MARTIN.

Case 76.—Jane White, Worton, Devizes. On crutches thirty-seven years. A few hours after the mechanism was fitted she could take my arm and walk to her lodgings, a good distance. Miss White's sister was here at the same time for an artificial leg. One was fitted with mechanism the other with a leg, and they were enabled to walk away together. (See letter).

Worton, Devizes, March, 1881.

Dear Sir,—We can both get on quite well with our artificials, for which we thank you very much. Jane could walk to church and back, a good distance from here, with only the aid of an umbrella; you will see from her photograph that she can stand erect by means of her instrument. As for me, with my leg I can walk quite fast, and my friends are surprised to see me walk so well. . . .

I remain, yours most respectfully,

REBECCA WHITE.

Case 77.—Miss Mitchell, High Ham, Langport (late of Somerton). Miss Mitchell came to me when a girl; she had been on crutches some seven years from injuries to the hip-joint.

I fitted an instrument, with high cork boot, which enabled her to dispense with the crutches at once; this she wore for some six years, when, from repeated adjustments to keep pace with growth and continuous wear, she had outgrown her instrument, and in 1881 she came for a second.

I found the limb developing, but as powerless without an instrument as on the first day I saw her. I state this that patients may see that instruments can assist life but they cannot at all times restore it.

High Ham, Langport, June 23, 1882.

Dear Sir,—I can walk quite well with my new instrument, and a good distance without anything for a support. I am very thankful to you, dear sir, to be able to walk as far as I can. I find that I am still getting stronger in that leg. May I thank you for your kindness to me.

Yours very truly,

M. MITCHELL.

In many of these cases there is rarely any development in the limbs. In this case it was otherwise, though the patient cannot walk without the instrument.

INFANTILE PARALYSIS (CONTINUED.)

23

CASE 78.—The above engraving illustrates a case of infantile paralysis. The patient, about 19 years of age, had not walked from infancy. As an

infant he was strong and well. A few months after beginning to walk, he was smitten suddenly with paralysis of both legs and one arm. In course of time the arm nearly recovered, but the legs in spite all medical and electrical treatment, remained lifeless as far as locomotion is concerned. The patient, apart from this affliction, is bright, intelligent, and enjoys tolerably fair health. This young man was recommended to me by patient 10, who made reference to his own case by way of encouragement. On my visiting the patient I found both the legs paralysed from the hip down and, when lifted, they swung as useless appendages, with the exception of a little indirected motion in one of the thighs. The limbs were so loose in the socket that they could be twisted round the neck. The knees were slightly contracted and the hips, or thighs, contracted forward from continuous sitting. This added to the difficulty, inasmuch, as it is necessary to success in any appliance, that the weight of body and lines of gravity should fall through the limbs.

I could promise nothing, neither could I give a gleam of hope. There may be a chance of raising him on crutches. However, the parents were anxious that I should take the case in hand, even if it resulted in a failure. The engraving will better illustrate the mechanical treatment. The sockets of the thighs take their bearings on the sitting as in artificial legs above knee, the mechanism being secured to a pelve belt. One knee is made to lock and unlock, while two springs flex the feet. The principal of adjustment is that of my Hip Instrument and not like the plan followed by the old school—that of a steel up the outside and inside, a band round the calf, a band round the thigh and a belt round the waist, made after a plan and not after the needs of the case. But I find foreigners are now adopting the principles I introduced 20 years ago and importing them to this country as new things.

To refer again to the case. I can nearly always insure success to a patient with one lifeless paralysed limb—it matters not how short, powerless, or contracted—but with both legs paralysed from the hip, that being the joint for locomotion, difficulties of no ordinary character present themselves. The first trial after the mechanism is fitted, is made in a go-car (Engraving 75) in which patients with two artificial legs soon begin to walk. In this case, though the car will run with a touch of the hand, the patient could not move. Crutches were then fixed to the car to assist the arms, but he could not move a step, except when pushed and then only with the greatest difficulty. I seldom fail, but I now saw I had been attempting the apparently impossible and began to regret that I should have to give up in failure. We now try him with crutches, one on each side, which proved of no help to him. One more thought suggested itself, a pair of two-legged crutches, as in engraving, so that he might shuffle the feet and prevent toppling over. After a little help and a few trials the first signs of motion were given as he swung from the crutches. Confidence was soon gained and slow, but imperfect, walking began. The crutches were soon exchanged for ordinary ones,

so that the patient could soon walk slowly round the garden, now and then toppling over as might be expected, but ultimately getting more confidence. The trial and exhaustion to a patient so situated can be better imagined than described. It is only plucky patients that could overcome it, but I have never known a case of injury from this exercise. The exhaustion and throbbing of the limbs generally wear off in a week or ten days.

I give this case to convey some idea of the difficulties the patient and mechanist have to overcome. How far he has succeeded the following letter says :—

MONTPELIER, BRISTOL, 5-11-87.

DEAR MR. GILLINGHAM,—I have delayed writing until I had something to tell you. I am glad to say my walking improves very much, in fact, I can now walk about the house and garden quite easily and very much quicker than when I left Chard. I can walk upstairs with one crutch and the baluster, by placing my crutch on the stair, catching hold of the baluster and raising both of my feet at the same time. I can come down the same way, but it makes the lookers-on rather nervous. I am beginning to walk more upright and can continue much longer, &c.

Yours, very sincerely,

E. F. V.

CASE 37A.—Mr. J. Sampson, age 19, of Cessland, Spreyton, Bow, N. Devon. Infantile paralysis, not walked from infancy, limb powerless and short deficiency made up with cork boot. The crutches were laid down on the fitting of the instrument and the patient could walk fairly well in half an hour. About a week after, he writes as follows :—

126, FORE STREET, HILL, EXETER, Jan. 1888.

The instrument answers well. I am beginning to feel it will be a success. I came here on Monday last and walked from the station, carrying my crutch under my arm.

Infantile paralysis mostly occurs when children are teething, or after convulsions

A child may be, to all appearance, healthy and put to bed well. In the morning it may be found with one or both legs paralysed, or one side, in extreme cases both arms and legs. Sometimes it is slight, in one or both feet, drawing the toes in and turning the feet over on the ankles. In other cases the tendon at the back contracts and draws the heel up ; or the tendon may become loose, relaxed, and the whole foot weakly. The limbs continue cold, the muscles soft and undeveloped for want of nervous energy. The first symptoms should speedily secure medical aid —electricity and friction of the spine and limbs. If paralysis is not arrested, the limb often becomes useless and does not keep pace in growth with the sound limb.

In severe cases, where both legs are affected, the patient is placed in a sheet of mechanism, both spine and legs, not with the idea of restoring life, but to assist the patient and prevent deformity. A case in point is that of Mr. Tytherleigh, junr., Axminster, paralysis of one leg and partial paralysis of the other, the result of spinal injury. Such cases are not unfrequent and trifling things lead to serious results. A similar

case to the above is that of a girl who received a blow from a ruler at school. Another where the chair was removed from behind a person in fun, so that the patient fell and injured the spine. Similar cases may be enumerated. Where both legs are affected the mechanical arrangements are similar to those in engraving 23 and only modified to meet the varied cases, but there is rarely any improvement in the limbs, though mechanism may have been used for years. Patients so circumstanced generally enjoy fair health, the affliction being local and not affecting any vital part.

Where one leg is paralysed, the instrument reaches to the sitting and round the waist; a child can generally walk on its being fitted.

Where the feet only are affected, the instrument reaches to the knees, but, where the feet are stubborn and will turn in and over on the ankles, they must be turned out and controlled from the waist.

Sometimes, and not very unfrequently, infantile paralysis is the result of sitting on cold stones or damp ground, causing inflammation to the membrane of the spine. Sometimes it follows after fever or measles, when proper precaution has not been taken, or by careless servants who let the children fall, or tip them out of a perambulator, &c.

Example.—Mr. E——, the son of an eminent London physician. This youth, with his friends, were at a watering-place; he was thinly clad in a holland suit (thin flannel or serge is preferable); he got warm and sat down on a cold stone or on the cold ground; retired to bed well to all appearance. In the morning one leg was paralysed. The first medical skill was secured, but to no avail; the boy had caught inflammation to the spinal membrane. It is remarkable (take all the mechanical cases that come under treatment) that there are more cases of spine and infantile paralysis than any other.

Is it to be marvelled at when you see children, with their little short dresses and thin under covering, sitting on the grass and cold stones? Scores of times have I seen little children sitting on cold grass and damp ground with scarcely anything to cover their little sittings. It is no wonder they are so often poorly and the mothers don't know what is the matter with them. Here let me suggest a thin uniform flannel covering for the body, and little pants, not to open, but unbutton from the waistband.

Referring to E. case again, I supplied him with an instrument that enabled him to walk; five years after I supplied a second to keep pace with growth, but the limb was as lifeless as the first time I saw him.

RUPTURE OF THE CAPSULE LIGAMENT OF THE HIP-JOINT.

Case 79.—Miss Bale, Belbrook, Washford, Somerset. This is one of the most difficult hip cases I have met with, and I gave it up at one time as almost hopeless. Miss B. had been laid up five years; when she attempted to walk without crutches it was by crouching and with

intense pain, caused by the head of the thigh-bone constantly slipping out and in at the cup.

At the time I treated the case the patient was inmate of Taunton Hospital. The first adjustment of the instrument was unsuccessful; there was no difficulty in putting the hip in the socket, but the difficulty was to keep it there while walking or sitting. The patient then came to my house where I have all my appliances at hand. It then took me some seven hours to adjust the thigh socket, and though Miss B. was patient yet exhausted, she could walk round the room without crutches. Nevertheless, I gave up thoroughly beaten; in certain positions the hip would slip out. In this case it may be well to add that my hip-instrument was fitted with a lock knee joint; it deviated from my ordinary hip-instrument in the construction and adjustment of the thigh socket. The socket was not only constructed to take the weight off the hip-joint, but it took a diagonal line across and around the body, taking a grip from the opposite side, so as to keep the hip in laterally.

Some time after I was applied to by another patient with a similar case, but I declined to treat it, feeling that my last case was most difficult, and to my mind unsuccessful. I said I would write to Miss B. and get her to say how she had fared, as I had looked upon it as a hopeless case. If I have a failure I admit it; I have nothing to withhold, and no wish to mislead any patients.

The following is an extract from Miss B.'s letter to my second patient:—

BELBROOK, WASHFORD, SOMERSET.

DEAR MADAM,—I have received a letter from Mr. Gillingham requesting me to write to you. My hip was quite out of joint; for five years I was not able to walk only quite double; now I have the instrument I can walk quite well, perfectly upright, and a distance of three miles. I should be able to do more if I was stronger in health. I have worn the instrument now eighteen months, and derived great benefit from it and I hope when I am stronger to say that it is a perfect success. I have been in difierent hospitals, but have derived more benefit from Mr. Gillingham than from all or either of them. I feel quite sure if there is good to be done to a poor sufferer Mr. Gillingham will do it. The first wearing of the instrument is very tiresome, but this with perseverance will soon wear off.

Believe me, dear madam, yours truly,

To Mrs. W. M. J. BALE.

BELBROOK, WASHFORD, August 29th, 1887.

DEAR SIR,—In answer to you kind letter, I beg to bear testimony to the great benefit derived from your hip-instrument, and am happy to inform you I am almost recovered from the dislocated hip, which I owe entirely to your treatment. I have left off the instrument more than a year, and have more than once walked a distance of six miles without the support or stick, in fact you would be frightened to see the improvement. Should be pleased to render any aid or information to any sufferer requiring it. I have quite forgotten the day of the week you visit Taunton or should avail myself the pleasure of calling on you. You can please make any use of this you think proper.

I am, sir, yours obediently,

M. J. BALE.

Note.—Here I would remark that some of my most hopeless cases, where I would not commit myself by promising anything, have turned out the most successful.

DISLOCATION OF THE HIP-JOINT.

CASE 80.—*Miss H——, 15 years on crutches. On the instrument being fitted this patient was enabled to lay aside her crutches and walk away from my house. There are one or two facts of interest connected with this case. Four years previous to this, when on a journey, I met the young lady in a shop; I handed her my prospectus and asked her to look at it on her return, as it might suggest a means of helping her. During the intermin she was under the treatment of a bone-setter, and a large sum was paid for setting the hip, without result.

On my succeeding, my patient could tell me that I gave her a book four years ago; she took the book, but felt a little offended at my giving it, and when home flung it under the drawers. If she had only taken the advice it gave she might have been assisted earlier. I meet many in this way when travelling. I met, while travelling, in a few months, in various towns, four patients—the first on crutches 29 years, second 24 years, third 18 years, fourth 32 years; they all came, and put their crutches down and walked away without them.

I met one lady while travelling who felt very much insulted; she saw me again on my return to the station and got into the carriage with me; she began to address me, I said nothing (I simply give my book and say no more), but she evidently felt I was no quack, and decided before I came to the end of my journey to avail herself of my skill. She is helped out of her difficulty, to the astonishment of her friends; and she writes to apologise for her first resentment of my offering the prospectus, and concludes by saying "Whenever you see a sufferer do not forget to stop them and give them your book." I see scores in my travels who are on crutches who may lay them down instantly. I have spoken to them and said "You may lay down those crutches at once and walk if you will take my advice"; and they have looked at me as if I was insane, evidently regarding my suggestions as some mercenary attempt to fleece them. The truth is, they have spent so much and tried so much that they have no faith in anything.

**Note.—Five years after fitting the first set of instruments a second set was supplied, when her father said "I owe a debt of gratitute to you, Mr. Gillingham, for the help rendered my daughter. Some two years before she came to you I paid H—— a hundred guineas for putting the hip in the socket (it was never put in); you have done more for her than all the treatment previously received.*

HIP FROM SOCKET.

A LIBERAL PATIENT.

CASE 81.—Mr. V——, London. This gentleman was 26 years on crutches; hip from the socket. On the arrival of Mr. V., he said "I am come to see what you can do for me." "You will put your crutches down in a few minutes when I have done with you." "How do you know that, you have not seen me yet?" "I know almost all my patients the moment I see them, and before the clothes are off I can

generally say instantly what I can do for them." "Why, you must be a wizard." "No, nothing of the kind, I make no pretentions to supernatural powers, but what I have acquired is by the careful study of the case. If you do not walk without your crutches you shall not pay me anything." "What if I do walk?" "Then you shall pay me ten guineas."

In the ordinary course, this gentleman came again to have the instrument fitted. In less than ten minutes after adjusting my patient could walk without his props, even to going up and down stairs. "What was I to pay you?" "Ten guineas." "You deserve all you charge"; and he put me down 15 guineas, then took my arm and walked to his hotel.

But I regret that though this patient is the most liberal one I ever had, out of some thousands, still after he left me he did not succeed so well as the generality of them do. Being a very active man on his crutches his locomotion was very fast; the instrument impeded his progress, and he could not give the time and patience to overcome the trial of the first wearing an instrument. Not only so, but in these long cases of hip dislocation, where the hip has become partly or wholly anchylosed, the action in walking comes partly from the spine, which makes walking trying, and it is only slowly and gradually to be overcome. Where there are difficulties and even failures I have nothing to withhold, and I put these cases that patients may not expect too much. I get very few failures, for where I see no hope I will not take the case in hand.

Shortly after the same patient sent for me to see a cripple boy in his own Sunday class, to whom he gave an instrument; thus, not deriving all the benefit he had hoped for, from the difficulties of his case, he is still anxious that others may have relief and help Some year or two after, as the instrument was abandoned (not that it would not prove successful if use had been continued), it was sent back to me, not with a request that I would allow or give something for it, but with the hope that some poor sufferer might benefit by its return (this generous spirit should inspire others) I could not adjust this instrument to another case, it is so difficult; but I soon found a deserving patient with hip from socket (been laid up years), and I made her a present of a new instrument in the name of the donor; she has now been raised off her crutches three years, and finds the instrument a great help.

ANCHYLOSIS OF THE HIP-JOINT.

I have often noticed, and it seems remarkable, that my work will run for a time on certain cases, then suddenly drop and run on an entirely different class of cases—sometimes on limbs, sometimes ten or eleven spine cases right away in succession, at other times on hip cases. Just at this time there were three cases of anchylosis of the hip, they were all ladies. One had been on crutches 16 years, the other 15 years,

and the other eight years. Anchylosis, as previously explained, is the cementing of the hip to the pelvis—that is, there is no movable joint, and to move the thigh forward is to move the whole of the pelvis and make a kind of axis or joint at the lower portion of the lumber region of the spine. Sometimes this adhesion may be partly muscular, but mostly from disease, where the thigh-bone has become honeycombed to the pelvis. In these cases there is generally a contraction of the hip and flexing forward of the thigh, which means considerable shortening. In two of these cases they were the shortest limbs I ever treated (nearly 12 inches from the ground), and required in each case a very high boot to the instrument. In one case the wounds were still running and had been for 15 years, and yet the patient enjoyed good health apart from this local affliction; this is not unusual In all the three cases they laid aside their crutches at once and could walk without them. The sound limb gives the principal action in locomotion. As the limb is put forward the ancholised limb is left behind, and on raising the body it comes forward with a kind of half-step without effort, and thus locomotion is effected with comparative ease; but long walks would become too tedious. The first writes as follows:—"I get on well with the walking." The second: - "I am getting on well with the instrument; can keep it on from morn till night without being tired; but I am careful not to do more than ordinary walking." The third:—"I do not get on very well; cannot continue the use of the instrument long together." All that may be needed is a re-adjustment This is the average general experience in such cases. They have to be tested by the use of the appliance. Thus those who suffer from anchylosis of the hip-joint may know what to expect when applying for an instrument. Though they may walk without crutches long walks should be avoided.

A HINT TO PATIENTS.

I have headed one of the cases "A Liberal Patient," and I shall now take this opportunity of laying a few facts before my readers and future patients, and, after I have placed them all side by side, I will leave them to draw their own conclusions In what I say, I do it not by way of complaint, but as suggested by my study of human nature.

All mechanists in my branch of usefulness have remarkable cases, but I venture to say, and without egotism, that there is no mechanist who can show such a succession of cases that I can; yet, of the thousands of sufferers I have relieved, if I were to put all their gifts together, above what I have charged them, it would not amount to fifteen pounds. I might have acquired money if I had made my fees higher, but it has never been my object to fleece my patients; the money-getting (though I own no more than I can earn) has always been a secondary consideration to me. Numbers of my patients, after 10 or 20 years' use of crutches, have laid them aside at a cost of five or six guineas —no remuneration for the help rendered. Most of my patients are respectable but hard-working, to whom even five pounds are an object, and if I make a charge and am paid I have no further

claim, neither do I look for more; but in future those who are well-to-do, and can pay, will have to do so.

For this past fifteen years I have worked all hours to relieve suffering; so much of my own life has gone into my patients' cases that I cannot now work more than half the number of hours; and when I cease to stand at my bench and work my income ceases. It has never been my lot to sit full-dressed in my arm-chair and dictate to others what to do; I do most of the work myself, thus my resources are limited and an increase of business, above a certain amount, is no good to me. Therefore, whatever I touch in future must pay. I emphasize this because the remuneration in the past has not been adequate to the benefits conferred.

During the past twenty years I have given the poor my attention gratis; I shall continue to do the same. During that time I have also given my advice gratis to nearly all comers. This I shall continue no longer. In all charity cases I have adjusted their instruments free of charge and when very needy repaired them for nothing and have given my time and railway fares free of charge. I say it with thankfulness and where there is any failure, I bestow any amount of time to make it a success free of charge. But, this is the giving side and experience teaches me the more one does for nothing the more one may. I find some take advantage of this, wear out their instruments and want them rectified for nothing. Most of my patients are thankful and grateful, but there are many who have no consideration, which the following facts show and these are only illustrations of a number of cases.

EXAMPLES.

A patient, well-to-do, on crutches nearly the whole of his life, is enabled to lay them aside at once. He writes: "I get on well with my instrument, I am going abroad and should like a second one, I paid you six pounds ten shillings for this instrument, how much less will you make me another for? "Sir,—In reply to your letter I beg to say I am much surprised at your asking such a question; you have lost sight of me and the benefit I have conferred on you and if I had been paid in proportion to the good done I should have been paid sixty guineas; I must decline to make you another instrument."

ANOTHER EXAMPLE.

A young woman, nearly thirty years on crutches, lays them aside; she was always very grateful and sent me other patients. Some time afterwards she dies, when her brother writes and asks me to buy the instrument. I replied "I did not sell an instrument, I gave my talent and a portion of my life-time to your sister's case; that I could not purchase back again, impossible." Then I was pelted with abuse and reminded what she paid for the instrument, which was about six guineas. Had she been living the question would not have been asked.

ANOTHER EXAMPLE.

A patient I helped considerably in his life died worth £30,000 and the survivors send the left-off instruments and asked if I would buy them. These things are only waste material and it not unfrequently happens that after patients are restored and they have left off their appliances, they will then send and ask me to buy them back, losing sight of the benefit I have conferred on them. This is human nature. There were ten lepers cleansed, but only one returned to give thanks, and this is the average. You see, reader, what with my givings on the one hand, and my letting patients do as they like on the other, I may be as poor as some of themselves. Why, if I had fleeced my patients like some do, I might have retired from business long ago.

Some time after this a gentleman came with his son, a hopeless case. He was helped to walk almost at once. I was beaten down in price and then asked for discount I never give discount, if I make an honest charge.

Some short time after I saw an account of his death and his will was proved under £33,000.

MY TWENTY YEARS' EXPERIENCE

teaches me this, that in future I must be better remunerated, and must decide the figures myself, as, you see, some would get all for nothing. If you have not the means, you must get your friends to help you, and if you are well-to-do, you will have to pay. If not, you will have to go on your crutches. I will conclude this series with two incidents of

DASH AND FLEECING.

A Surgical Mechanist, of London, was telegraphed for to come into Devon, near Exeter, to see a patient. He came first-class, of course; a carriage and pair was ordered at the "London" to take him to the patient. He returned, sent a small appliance, for which he charged five pounds, and one hundred guineas for his journey. Now, if I had done this, they would have thought me a clever fellow.

I was called to London one day to see a gentleman who had been laid up some years, paralysed in both legs, from the hips down. On examining him, he said "What can you do for me?" "Not anything." "What, not with all your wonderful cases?" "No, I can assist life under certain conditions, but I cannot give it, I cannot help you." "Then let me say you are the only honest man that has ever come to see me. Every man, whether doctor, mechanist, or electrician, has been going to cure me and I have been under treatment for years. I have now spent twelve hundred pounds on my case, and last week I paid an electrician forty pounds for a few weeks treatment and I am no better to-day than the first day I put myself under treatment.

Of course, reader, my book is a book of straightforward facts. Tradesmen generally do not publish prospectuses after this sort. For the best thing to take now-a-day is a good lying advertisement and the more some are humbugged, the better they are pleased.

DIFFICULT CASES.

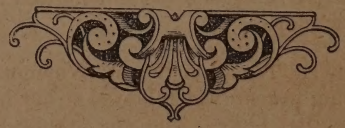
Not long since a young gentleman came on crutches, who had not walked from infancy. Case like engraving 21. What can you do for my son, said the mother? Enable him to walk in ten minutes without his crutches.

Well, I cannot understand it, we have had the first of skill and recently seen Sir W Gull. If these gentlemen cannot help him how can you help him to do as you say? Here is your difficulty, all the medical men in the world cannot give life to a paralysed limb, neither do they pretend to, the fact that you have secured the first of medical skill does not help your son in the least. I cannot give life, but I can help him to put down his crutches and walk without them and not need them any more. The measure is taken for the instrument. Now, said the young man, shall I be able to run. Certainly not, but you will do ordinary walking. But, see, I can go fast, play at tennis on my two crutches, &c. Well, if you can do all this, you don't want me. Well, he said, I do not know quite what to decide. I will decide for you, I shall not make the instrument and you will have to go on your crutches.

A SIMILAR CASE.

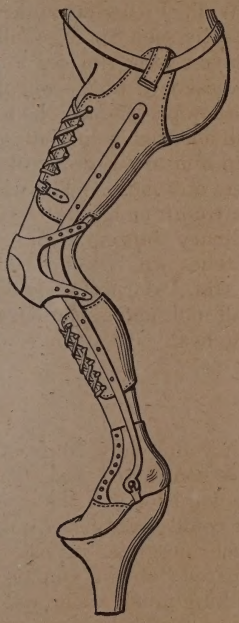
A young lady, fourteen years on crutches, with leg partly developed, knee contracted, and shortening made up by cork boot. The instrument was adjusted and the crutches were laid aside, in less than half an hour she could make a fair walk, even without a stick, in fact, she made as much progress, in as short a time, as any of my patients similarly situated. I said you are getting on nicely, time and practice will make walking much easier and I hope you are satisfied. No, I am not, was the reply, I am very much disappointed. She really thought I was going to perform a miracle and restore the limb.

Almost as bad as the patient with an artificial eye, who complained because he could not see with it.



INJURIES AND AFFECTIONS OF THE KNEE JOINT.

Now I pass to another class of cases, similar in treatment, but different in kind and embracing disability from affections and injuries of the knee joint. The instrument adapted to the cases to follow is illustrated in engraving (No. 24). In these cases there is no extending apparatus, but rest taken on the sitting. Some knees less contracted than in engraving need not the high cork boot here represented.



CASE 82.—Mr. Lakey, of the Albion Club, Weymouth. Seven years laid up. On the fitting of the instrument, walked at once without his crutch.

ALBION CLUB, WEYMOUTH (now of the Co-operative Store, Weymouth),
April 24th, 1873.

For several years I was unable to walk without crutches, arising from an affection and contraction of the knee joint. The instrument Mr. Gillingham supplied me with, is so useful that I cannot overvalue it or sufficiently thank him. I can now take long walks with the assistance of a stick, and am enabled to follow my occupation in comfort. Trusting that sufferers like myself may avail themselves of Mr. Gillingham's skill.

RICHARD LAKEY, Manager.

Mr. Lakey was supplied with a second instrument in October, 1887.

CASE 83.—Mr. Antell, Margret Marsh, Shaftesbury. Laid up 14 years. At Weymouth for a change, Mr. Lakey met him on the Parade and induced him to come to me. On the fitting of the instrument, the same results as in all other cases followed.

MARGRET MARSH, SHAFTESBURY, April 28th, 1873.

DEAR SIR,—I am thankful to tell you I get on very well with the instrument you made me, I have not laid by a day since I had it, previously I had to lie by half my time, now, I thank God, I can walk miles without a stick and attend to my farming business with comfort.

I remain, yours faithfully,
JOHN ANTELL.

After six years I fitted a second instrument and in January, 1888, Mr. Antell sent me a similar case.

CASE 84.—Miss Bagwell, Terminus Street, Weymouth. On a crutch seven years. This young woman was followed to her home on a Sunday evening after service by Mr. Lakey, who was anxious that every cripple

should receive the same benefit as himself. He explained his mission and how he laid aside his crutch. The young woman came and her crutch was laid aside at once on the fitting of the instrument. I have had more cases by recommendation in this way, than by all the advertisements I have ever issued. My cases are so remarkable that the public will not believe them and News proprietors have even declined my advertisements as being untrue.

On another occaasion Mrs Lakey followed a young lady from Church who was using crutches and had been doing so for years. She was induced to come to me and the crutches were laid aside. In September, 1887, being at Weymouth, hearing my patient was home, I called on her. Miss Lee, of Grove Buildings, George Street. She had been from England, I had not heard of her for seven years. She was still wearing the instrument and as she was just on the point of leaving for America, she gave the order for another instrument. The same day I met Mr. Lakey, I had not seen him for years, though he continually sends me patients. He still had his instrument in use and had worn it some fifteen years. This is the kind of testimony that is most encouraging to me as well as to sufferers, and I prefer to give an old instead of a new case, as it shows more satisfactory results.

Case 85.—The late Miss W——, of Exeter. Twenty-seven years on a crutch. Leg undeveloped, contracted knee, five-inch shortening; could walk half-a-mile without her crutch on the fitting of the instrument.

Case 86.—Mrs. Raddon, Summerland Street, Exeter. Thirty-two years on a crutch—nearly the whole of her life. Mrs. Raddon was met in the street at Exeter by Miss W—— and induced to come to me. In less than ten minutes the prop was laid aside and a good distance walked without it. This is another illustration like that of Mr. Lakey's receiving good and feeling anxious to direct others. The reader may confer a similar benefit by posting this prospectus to some sufferer.

Summerland Street, Exeter, Sept. 20th, 1875.

Dear Sir,—After walking with a crutch thirty-two years, I have the pleasure to inform you that your instrument has enabled me to walk in comfort, and has also given me the benefit of having both hands at liberty. I consider the result in my case truly wonderful. I can only say that I wish I had heard of you before.

I remain, Sir, yours truly,

Mr. Gillingham. C. RADDON.

Mrs Raddon has now worn her instrument for 15 years. Writing in January, 1886—"Since the repair and adjustment of my instrument it does beautifully, I can wear it with perfect ease."

This is the instrument first supplied.

CASE 87.—Mr. Hutchings, Jeweller, &c., Shepton Mallet. On a crutch twenty-five years; undeveloped limb, contracted knee, six-inch shortening. After the adjusting of the instrument, the crutches were laid aside and Mr. Hutchings walked to the railway station, a distance of half-a-mile.

SHEPTON MALLET, June 20th, 1871.

DEAR SIR,—I feel a pleasure in recommending all who are so unfortunate as to require assistance of a surgical mechanist, to give you a trial. Twenty years ago I fell and injured my knee. After going through several tortures at Salisbury Infirmary I was left so as to be compelled to walk on crutches. On seeing your advertisement I was led to pay you a visit and to my great astonishment and that of my friends, who thought my case impossible, I dispensed with my crutch as soon as the instrument was applied and walked to the railway station; I can now walk three miles without a stick. Yours truly,

THOS. HUTCHINGS, Jeweller.

CASE 88.—Mr. Stephenson, Commercial Road, Weymouth. Twenty years on a crutch. Hip loose in the socket, knee slightly contracted, limb undeveloped and seven-inch shortening. On the adjusting of the instrument, could walk immediately.

PRINCE COTTAGE, COMMERCIAL ROAD, WEYMOUTH, Sept. 1877.

(Removed to 34, Watting Street, Canterbury.)

DEAR SIR,—I find the instrument you made for me invaluable, I have worn it every day since I had it and am able to stand all day without tiring and can walk three or four miles with ease. I hope you may long live to benefit many fellow-sufferers. I have the honour to be Yours ever grateful,

To Mr. Gillingham. W. STEPHENSON.

CASE 89.—Mrs. Willis, 25, Tavistock Place, Tavistock Square, London. Laid up 27 years. From time to time was under the first of medical treatment. Within ten minutes after the instrument was fitted the crutches were laid aside and the patient walked without assistance.

25, TAVISTOCK PLACE, TAVISTOCK SQUARE, July 13th, 1880.

DEAR SIR,—I am happy to tell you I have found my instrument a very great boon to me, it answers admirably.

Yours, &c.,

LOUISE WILLIS.

CASE 90.—Mr. Skinner, Cheltenham. Twenty-four years on crutches. I met Mr. Skinner in a shop at Cheltenham ten years previous to his coming to me. I spoke to him and told him he may lay down his crutches at once; he had then been using them 14 years, but there was a lack of faith, and his parents, as well as himself, thought it a folly to anticipate such a thing. About two years since Mr. Skinner came to me, when he was enabled to lay down his crutches and walk away.

238, High Street, Cheltenham, December, 1880.

Dear Sir,—I am trying to send you another patient who walks on crutches. I can get about very well indeed. I have surprised the people here, and I have been heartily congratulated on the success of the instrument.

Yours very truly,
C. SKINNER.

N.B.—The patient referred to by Mr. Skinner, who had been laid up some seven years, came in due course, and the crutches were laid aside; and five years after supplying the first instrument to Mr. Skinner he came for a second.

Case 91.—Mr. S——, Tiverton. Between thirty and forty years on crutches. The limb in this case was very weak, small, and contracted, deficiency made up by a high cork boot. On the fitting of the instrument there was exceeding timidity and sensitiveness; it is so with some patients, even the thought of walking again overcomes some for a short time; however, the crutches were laid aside.

Tiverton, December 15th, 1880.

Dear Sir,—I am quite satisfied with my instrument; all that is required is to throw away the nervous feeling which I experienced when at Chard. I found on trying it alone that I could walk even without the assistance of a stick. . . . .

Yours truly,
J. W. S.

Case 92.—Mr. A. E. Miller, Bristol. Some years on crutches, from injury received to the knee-joint; crutches laid aside on the use of the instrument.

Hollybank, 2, Redland Grove, Bristol, Dec. 17th, 1880.

Dear Sir,—I have been using your instrument nearly five weeks, and am glad to tell you it gives me more support every day; I can now walk a couple of miles a day with the use of two sticks, without feeling much fatigued; I hope soon to be able to walk with the assistance of one stick. . . . .

Yours faithfully,
A. E. MILLER.

At a later date a second instrument was supplied to fall back on in case of breakage or repair.

ANCHYLOSIS OF THE KNEE JOINT, THE EFFECTS OF RHEUMATIC FEVER.

Case 93.—Mrs. Hunt, Weymouth. Some time on crutches; knee contracted to a right angle, anchylosed, sensitive and painful. The crutches laid aside on the fitting of the instrument.

36, Park Street, Weymouth, June 19th, 1882.

Dear Sir,—I must apologise for not writing before; I am getting on nicely with my apparatus, and can walk a good distance out of doors, with the assistance of an umbrella, and with comparative ease. . . . . Hoping you may be long spared to benefit sufferers like myself.

Yours truly,
S. HUNT.

Case 94.—Miss Friend, six years on crutches. Knee contracted to a right angle and very senitive; the crutches laid aside on the fitting of the instrument, and a fair, good walk set up at once.

Hackwells, Dolton, Devon, June 28th, 1882.

To Mrs. G.,—It gives me pleasure to write and tell you how nicely my instrument is answering. For a week after we arrived here I got on exceedingly well, went out to see my friends, who were surprised and delighted at the successful issue. I am very thankful for the benefit received, and hope Mr. Gillingham will long be spared to relieve others similarly afflicted. . . . .

Believe me, yours sincerely,
M. FRIEND

Case 95.—Mrs. Brown, 93, Dock Street, Newport, Mon. Knee anchylosed to a right angle; six years on crutches, which were laid aside as in the previous case, and followed by the same successful walking. Mr. B. sets to work looking up other sufferers and writes:—"Mrs. B. walks well, and I am looking up others, as all should know the blessing there is in store for them."

EXCISION OF THE KNEE-JOINT.

Case 96.—A. Wrixon, Salway Ash, near Beaminster. In this case there was an excision of the knee-joint, but the union gave way. This was either the result of bad surgery or the want of unious matter, as in Lock's case (engraving 20). The patient having no knee, with the weight and no union, the tendency is to give, and there may be a serious break-down at any moment. For some time the patient took to crutches; when he came to me I made an instrument to set the knee and take the weight off the joint, making up the deficiency with cork boot. The crutches were dispensed with at once, and Wrixon has continued since the fitting of the instrument, in March, 1880, to get his living as a traveller with sundry goods, &c.

In selecting these cases I have gone into all the little details about them, that sufferers who want to know all about their own case may be helped to the solution of any difficulties, and encouraged to hope for some real assistance.

Case 97—Mr. W. C. Davidson, 143, Firpack Street, Dennistown, Glasgow. On crutches from childhood; the limb useless without mechanical aid; the foot so set that it made it more than ordinarily difficult to fit a suitable boot and instrument. The instrument was supplied some four or five years ago.

Glasgow, December 31st, 1887.

Dear Sir,—I am doing well with my instrument, wearing it constantly from morn till night, it gives me little trouble. I can walk long distances in town and country. I trust you are keeping busy at your noble employment.

I remain, yours sincerely,
W. C. DAVIDSON.

FOURTH SERIES.

SPINAL AFFECTION AND CURVATURE.

Spinal cases are more or less intricate and perplexing. There are the simple forms and the more complex We know comparatively little about the spinal cord and brain, the seat of these affections. The more simple cases are those of lateral curvature, where the curve is compensatory, arising from one short leg, loose habits of sitting, walking and lying, from carrying weights on one side, or from weakness. They are treated mechanically, or by lying and rubbing they are materially helped, the curve being arrested and reduced. Those who carry weights on their heads in their daily work have the most erect and perfect spines, as the will calls all the muscles into action to sustain the weight, thus keeping the spine erect and preventing lateral curvature, which is simply muscular traction—one set of muscles pulling more powerfully than the other.

The less simple cases are those of curves of the spine or angular curvature, the effect mostly of overstrain or concussion, but sometimes caused by a blow produced by a fall. This form of curvature may produce paralysis of one or more or all of the limbs—it entirely depends where located. The remedy in these cases is a course of medical treatment to arrest the wasting away of the vertebræ and a mechanical arrangement to relieve the spine of pressure while the disease is being treated and the patient restored to tolerably good health. The curve is scarcely ever cured except in simple cases or when taken in its early stage.

The more complicated cases are those where the patient is partly or wholly paralysed, or is weakly and failing, or in cases where there appears to be a well-formed spine with a fair muscular development and no trace of curvature. This may arise from concussion, effusion of the spinal cord, internal pressure, or inflammation of the spinal membrane. Sometimes these affections may be constitutional or brought on by sudden shocks of fright, and often lead to the partial or entire paralysis of a leg or arm; when entire it generally proceeds from the cervical vertebræ of the neck or brain. Such cases are very perplexing to the professional man, requiring great skill and a long time in treatment; they cannot be hastily cured, as nature will take her time year after year to bring about the necessary repair. All such cases are not by any means hopeless, and patients should not be desponding because of the time required for their relief—hope on, hope ever. I have seen patients restored to health after lying for 10 and 12 years. Why is this? Because the body changes every few years, and during these changes, under judicious treatment, restoration is carried on. I have treated patients myself who have laid for years, having spine affection but not the least curve; they were raised and restored by appliances made to relieve the spine. How they got well I cannot tell you, but it

was no doubt in consequence of the relief given by mechanism to set and rest the spine. Another cause of spinal weakness is abuse—a drain of the natural energy; a thing I ought not to mention, but why should I refrain when I know it is undermining the constitutions of thousands and leading to all sorts of maladies. Nothing is so baffling to the medical attendant as being misled.

One day a young man, with a very weak spine, was brought to me by his father. He was in an exhausted state. I saw no curve, and on sounding the spine, and putting pressure on every vertebræ, I found there was no tenderness or trace of effusion or disease. "Well, young gentleman, excuse me, you have no spine affection nor curve; you require no instrument; you know the evil habits you have been practising, give them up and your spine will become strong." It came down upon my patient like a thunder-clap. He admitted I was right, but had not understood the evil.

Some time after an officer from one of Her Majesty's ships came to see me—a similar case. A few questions, and I touched the seat of the malady without putting my hand near him. He admitted it. What did he say? "At times I am so wild that I feel I want to jump overboard." Why? Because of the drain on the spinal cord and brain, which is the cause of impotency and insanity; and yet you must not speak of these things; you complain to the doctor but do not tell him the whole truth.

Until recently, nearly all spinal cases were treated mechanically. The introduction of L. A. Sayre's (M.D., of New York) treatment by suspension and Plaster of Paris bandage, has opened up a new field, the beneficial results of which are beyond question in some cases. Some are enthusiastic enough to say that now the surgeon is entirely lifted out of the hands of the mechanist. But such is not the case. Whilst a large number of cases can be treated on Sayre's plan, there are those where mechanism is and will be still required. Not only so, but in some cases where there has been marked improvement by Plaster of Paris bandaging, and it is not pleasant nor convenient to go on from year to year, a proper fitting support will be found necessary to secure the results which the constant bandaging has effected. Where the patient improves in health and strength, it may be dispensed with, but weakly laxed spines, though the patient may be benefited, the spine goes down the moment the bandage is off and, therefore, needs a support.

DIVIDED OPINIONS.

Notwithstanding the beneficial results derived from suspending and setting the spine, many orthopœdic surgeons take exception to it; one thinks it a hard kind of treatment and adheres to mechanism entirely. Another, while he dispenses with the plaster of Paris bandage, adopts Poro Plaster Felt, adopting Sayre's plan of suspension, while the felt is being applied in a heated and plastic condition. Others adopt the original plan; another dispenses with the whole of these forms of treatment and has recourse to friction, manipulation, &c. If the cases

recorded in *Mrs. Godfrey's work are genuine, and I have no reason to doubt them, from what I can learn of her work, her treatment, being friction and manipulation, the bringing into play muscles that are inactive, under other forms of treatment, she has outstripped both mechanist and Sayre.

In cases of Angular Curvature, or Pott's disease, some object to Sayre's plan of suspension, while they adopt his plan of bandaging the spine, and to do this they lay the patient flat, or suspend him horizontally in a net and while in this position the bandage is applied.

The objection to suspension is that the inner surface of the vertebræ having wasted away by extending, you leave wedge-like cavities, there being nothing to fill them and this may result in paralysis or serious mischief.

Nearly every practitioner has some plan of his own for trying to accomplish the same results.

A QUESTION.

The question comes—which is the best mode of treatment? There are no cases on which there is more divided opinion than those of the spine and none that have so baffled the skill of both surgeon and mechanician. Every one must answer for himself, looking at it from his own experience and stand-point.

From twenty-years of experience, and looking at the matter from my own stand-point and as a mechanist, I give preference to Sayre's original plan of suspension (of which there are modifications) and the plaster of Paris bandage. This I must qualify by saying, only where the patient is a fair subject for his treatment; for example, I recently fitted a lady, 72 years of age, with a spine support, who could not go under the treatment of a plaster of Paris bandage, and, therefore, not a fair subject; but I will select two cases treated by myself on Sayre's plan, one of angular and the other of lateral curvature.

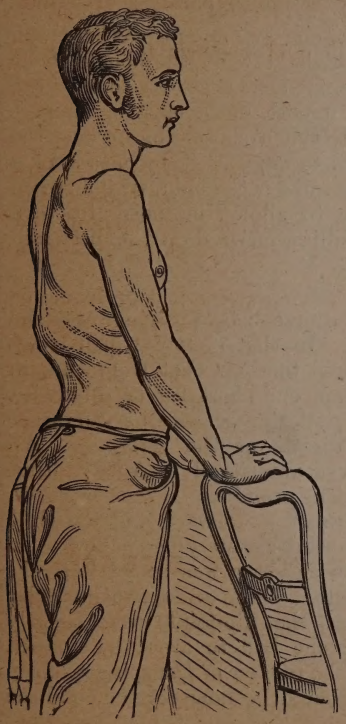
ANGULAR CURVATURE, OR POTT'S DISEASE.

I was called to Leeds to see several patients; one was suffering from Angular Curvature between the dorsal and lumbar region; he seemed much distressed and in great pain, his breath was catchy and he leaned with his hands on his knees for support. "What can you do for him?" asked his doctor. "I should put him up in Sayre's bandage."

I had nothing prepared, the doctor had not seen a case so treated. The matter was decided, the materials soon procured, and a temporary suspender erected; the patient was drawn up on tip-toe and experienced relief, the bandage I soon put on and in due course laid the patient on a couch to rest, after which he walked away in comfort. He returned the next day to work at his trade (a tailor). Three months after his doctor waited on him to renew the bandage, but the patient declined, he had experienced so much comfort and relief and his health had so improved, that he feared he should not be so comfortable again.

*Published by John Churchill, New Burlington Street, London.

Now, as a mechanist, I mean to say that no mechanical contrivance, as formerly employed, could accomplish such results. The advocates of felt may say what they like about the disadvantages of not being able to wash the patient, sores, perspiration, and the like ; there may, in some cases, be these disadvantages, but they are trifling compared to the advantages secured by a permanent support, made from an accurate and well-applied bandage. In such cases no support that would be constantly taken off to change and wash, could be equal to that which sets the spine and gives it perfect rest. I have been surprised that the plaster jackets generally are so clean after being worn so long. Since the above case, I have treated a number with the same satisfactory results.



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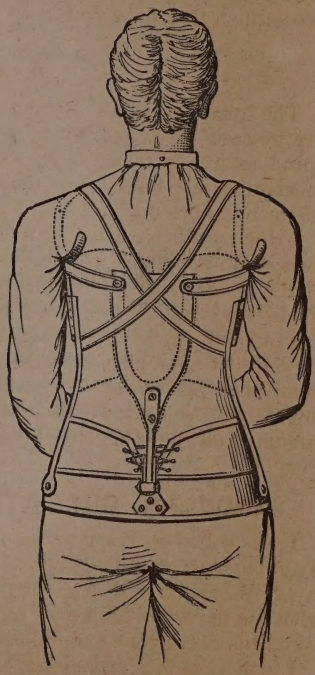

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Engraving 25 illustrates a case of angular curvature. When the curve is low, it generally affects the legs and extremities, when higher it affects the arms and extremities.

The ordinary support adapted to such cases is illustrated by engraving 26, provided with a padded pelvic band, to which is attached two lateral crutches to support and prevent the body leaning

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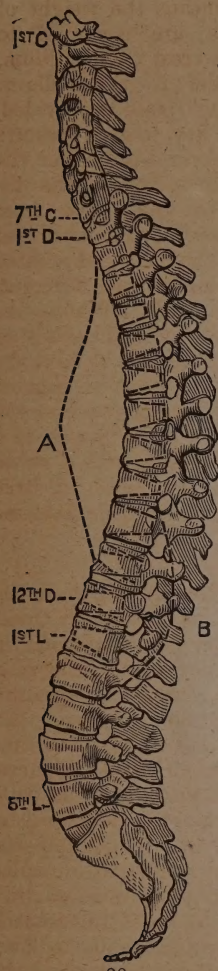
forward on the wasting and distressed vertebræ. By this means the weight of head and shoulders are conveyed to the hips or over the crest of the illium, affording great relief to the sufferer. A hollow padded back-piece is provided, worked by rack and key, to give pressure and rest on the transverse process of the spine, at the same time leaving the distressed and sensitive angle free from pressure, the front is likewise supported by a laced stay. In the more complicated forms the arrangements are different. (Example, engraving 27). Where the angle is high between the shoulders or neck, it is not only necessary to have the ordinary support, but a mast or support attached to the back coming up over the head, so as to support it by means of a rest to pass under the chin, with a swivel suspender to allow the head to turn without falling forward on the distressed vertebræ.

I may here deviate a little from my course before passing on to the explanation of the following engraving. In that section which treats of Lateral Curvature, I have endeavoured to show that Curvature in some cases is compensatory, arising from one short leg or otherwise. The same thing may occur in a case of posterior or anterior curvature where there is no caries or actual disease of the vertebræ. An anchylosed hip-joint will produce a curve anteriorally. A short time ago a little girl was brought to me with prominent anterior curve, similar to engraving 29. The stomach was very forward and the child had to keep her balance on tip-toe to prevent her swaying backwards on to the back of her head. Strange to say the case was congenital—she was born with her hips out of the sockets. There were two muscular sockets, but being dislocated backwards, the hip-joints were slightly contracted, or flexed. To stand erect she had to arch the stomach forward and make an anterior curve at the lumber of the spine to keep her gravity. Anxious that something should be done for the child she was taken to London to about ten eminent surgeons, the consultations were continuous, the advice given at each consultation being only known to the parent. Thus the lady paid twenty guineas right off for consultations

Now I am come to you, said the parent, for the opinions are so different that I am in a worse fix than ever. What can you do for the child ? Not anything by way of restoration, the only suggestion I can offer is to construct boots so as to save her walking on the toes, which will give the necessary rest and thus prevent her swinging backwards, by so doing compensatory balancing will be materially assisted, with the addition of a stiff boned stay to support the spine.



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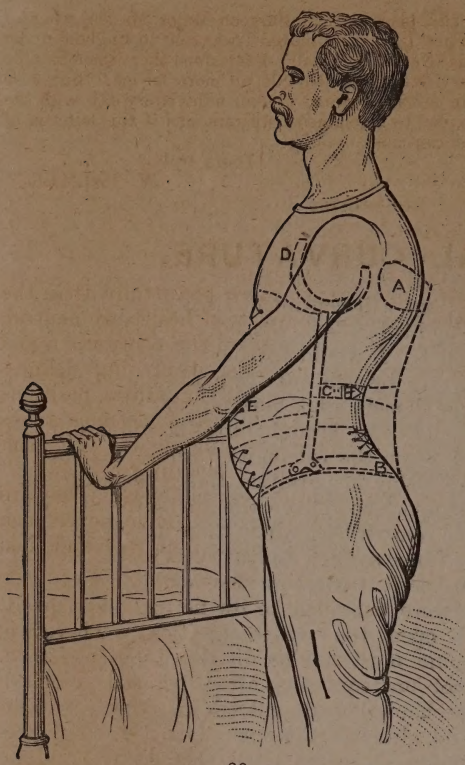
To illustrate more clearly the nature of angular curvature I have provided the engraving 28, which gives the natural curve of the spinal column. The dotted wedged line opposite A shews the wedge cavities produced by the wasting away of the inner surface of the vertebræ, so that when the spine sinks forward the back projects and forms in the dotted line A an angular curve, so that any support that will prevent the patient leaning forward gives the greatest relief. In cases where there is no support the patient will continually rest his elbows on a table, or his hands on his knees, or elsewhere to get relief. I would further note here that as the nerves branch out from the spinal column and the lemela and vertebræ waste away the keen edges are brought together and nip the nerves, when the extremities refuse to obey the will, resulting in paralysis, thus the importance of a support to relieve the pressure. I would further remark that when there has been waste of the inner surface and a considerable sinking forward serious consequences would ensue if the spine were extended to its normal lines, as it would open the wedge cavities. Therefore the spine must not be distressed but assisted; and not unfrequently, after judicious medical and mechanical treatment, the disease wears itself out, and, although the curve is not reduced, the patient is restored to fairly good health, and in some cases can lead an active business life.

Engraving 28 also illustrates anterior curvature This may arise from accident or the wasting away of the vertebræ from without. This causes the back to arch in at B and the stomach to come forward (as illustrated at the 12 dorsal vertebræ) The kind of support generally supplied for anterior curvature is illustrated by engraving 29.

A pelvic band is secured just above the hips, and further supported by joint lacings over the crest of the illium. To the belt is secured two lateral crutches to come well up in front, a back piece with padded shoulder plates B and A, supported by the strap C, in addition to which is the abdomen stay E secured to the lateral uprights. The tendency of this support is to rest the spine and reduce the curve.



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By way of illustration I will give a case or two of angular curvature. The patient I shall now refer to (case 98) was a soldier exposed in the camp; invalided home and discharged. He was in the Natal Hospital for some time; they could not tell what was the matter with him; he came home, and his case developed into posterior curvature; he was some time at Taunton Hospital (an out-patient) but with no benefit. He was recommended to me. I discovered he was suffering from posterior curvature. I said, "You don't want physic, you want some means that will give you rest." I made him the apparatus needed. He came to me weak and stooping; the result of the rest afforded by the support you will learn in his letter, and this one case will illustrate scores of similar ones.

High Street, North Petherton, August 1st, 1881.

Dear Sir,—I find the spine support you made me in June last is invaluable. I have worn it every day since I had it, and am able to stand all day without tiring, and can walk a long journey with ease. Trusting that sufferers like myself may avail themselves of Mr. Gillingham's skill,

I remain, sir, yours truly,
FREDERICK GEORGE CLAPP.

Five years after I supplied Mr. Clapp with a second spinal support; while wearing the support he was collector for the Pearl Life Assurance Company, under Mr. Coleman, superintendent, Taunton, in which capacity he would walk ten and fifteen miles a day. Recently he has left off his support and is doing his work effectually without it. The following is a similar case:—

Case 99.

Ham, West Buckland, near Wellington, Sept. 24th, 1886.

Dear Sir,—I have now worn the support twelve months, and well tested its value. My back is painful at times, but I can by no means walk without it. I injured my spine in the Nile Campaign by the fall of a camel, which pitched me overhead, and in falling my back came in contact with a rock. I was not able to move, and lost all power of the extremities. I was sent to Wady Halfa Hospital; after being there

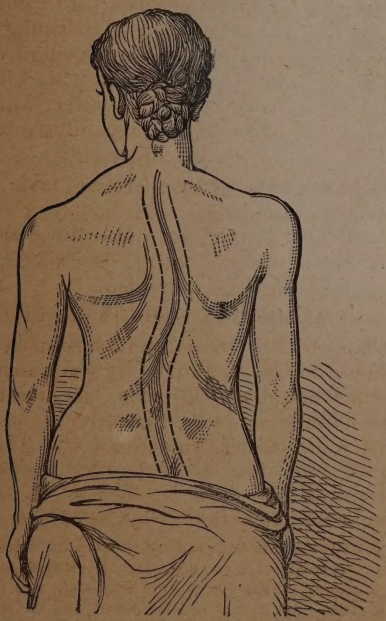
some months was sent to Cairo, and placed under Surgeon-Major Martin, where I received the best of treatment. When I could be moved I was sent to England under the care of Surgeon-Major Williams, Netley Hospital. I remained there some months and was then invalided from the service. They could do no more for me. But, dear sir, I am happy to inform you I can now walk three or four miles every day with the aid of a stick. I shall be only too glad to recommend sufferers, and if this letter is of any service to encourage others you can make use of it.

Yours truly,
W. PALMER.

LATERAL CURVATURE.

In lateral curvature one set of muscles act more powerfully than the other. In the human body the muscles in a state of health are neutral, anything that disturbs the balance of power sets up the contraction and curvature. I have seen sound straight spines after weakening sickness develope into the worst of curvature from lying in unnatural positions while the frame has been in a lax state. Curvature sometimes arises from loose habits, such as standing on one side, nursing on one arm, pressure, overstrain, but too often I have found it hereditary.

No cases are so difficult to treat mechanically, especially when they are decided and stubborn, as those of lateral curvature. I have never seen a thoroughly decided case cured and very few much improved and then only when taken in the early stage.



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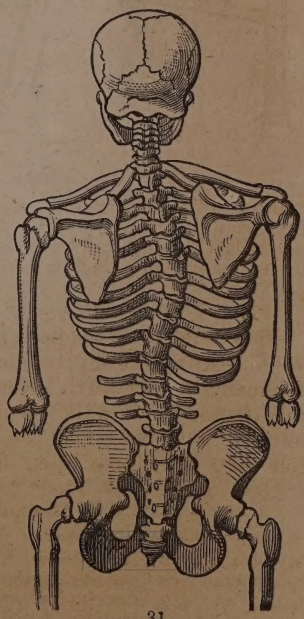

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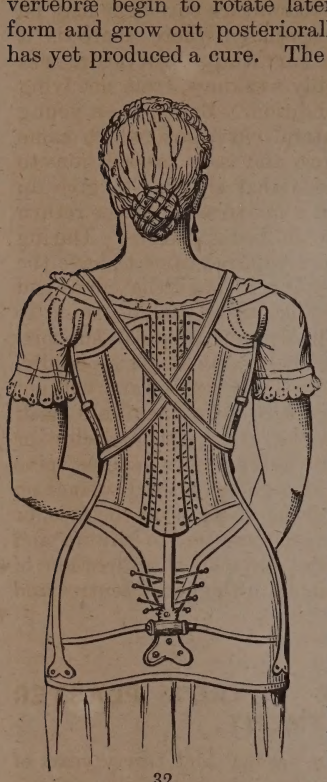
Engravings 30 and 31 illustrate lateral curvature of the spine. In extreme cases the curve becomes more acute and the back considerably reduced in length. The difficulty with lateral curvature is that when not arrested early, the curve becomes set and decided, when the vertebræ begin to rotate laterally on their axis and the ribs begin to form and grow out posteriorally. No mechanism that I have ever seen has yet produced a cure. The spine may be extended from time to time by suspension and the curve considerably reduced in young and mobile spines. This does not at all times prevent it from twisting laterally, and the ribs striking out from their facets diagonally, and thus giving the fullness under one shoulder as illustrated in skeleton (engraving 31). In such cases where the patient is not treated with plaster of Paris support (poro felt supports for these cases, in my opinion, are useless) a mechanical contrivance is employed after the pattern of engraving 32. To the upright back-piece is secured a clip like the hand to act on the prominent side, adjusted by means of rack and screw, worked by a key; or otherwise arranged so that the half on the prominent side is laced tight to the centre back bar, while on the depress side laced loose; but there is no fixed rule, as various cases are differently treated and modified. In early mobile cases a central back-piece is provided, divided in the centre, to press on the transverse process of the spine; this is fixed to a pelvic band, at the top two crutches branching out like two horns, thus, with a spring back-piece, giving rest and allowing motion.



32

Not long since one of the senior surgeons of one of the principal London hospitals sent me a spinal case. On an interview with him he asked me this question, "What is your honest opinion of the treatment of spinal cases generally, taking them from your own experience and standpoint, and what is the average success?" "To arrive at this we must take all the cases that come under treatment. The tendency of all, even essay writers, is to give the successful cases, but what we really want is not only the successful ones, but all the failures, then we shall arrive at an answer to your question." "That is it." I know of cases of spinal curvature that have been under the first of medical and mechanical treatment when the parents or patient not being satisfied with the success have gone to others equally skilled in treating spinal cases, and so they have continued; and, in spite of all

that has been done, though the patients have been relieved, yet curvature has continued to go on under the instrument, especially when the spine has begun to give a spiral twist as in engraving 31. The vertebræ rotates on its axis to the growing out of the ribs posteriorally. Honestly, I have never seen a decided case of lateral curvature cured; it may be improved and arrested, but not cured, especially where there is a disposition, constitutional or otherwise, to curvature. Curvature will sometimes come on after sickness and bodily weakness, from not lying straight when the muscles are in a laxed condition. Example—a young young lady 18 brought to me for double lateral curvature, which came on after fever. I took the necessary measure and made preparations to fit the support; meantime I gave instructions that she was to give up the bed and lie perfectly flat on her back on a mattress. On her return home she caught violent cold and had to lie in bed six weeks. During that time she lay on a mattress, and when restored came to have the spinal support fitted. On looking at the spine I found the curve had entirely disappeared. Note.—There was a disposition in the spine to correct itself and the straight lying did it without a spinal support. Here is the secret of cure in these cases, in their early stages especially, but young people somehow have a crook in their temper and will not lie; they know best. When lateral curvature first manifests itself young patients can do more for themselves than either doctor or mechanist—lie straight, and when sitting use Gillingham's inclined spine chair, swing with the hands, and then lie straight on a hard surface on the back for an hour, strip the back and lie straight on the face, or twist the spine opposite to the curve, then get some one to rub up and down the hollows or transverse possess of the spine in the direction of the dotted lines (engraving 30); thus stimulate the nerve centres and effect a cure.

LATERAL CURVATURE UNDER SAYRE'S PLASTER OF PARIS TREATMENT.

Case 100.—A young lady, now between twenty and thirty years of age, who has had a tendency to lateral curvature from a child, was for years under the best orthopœdic surgeons in London. No expense was spared and hundred of pounds have been spent to secure the desired results, but in vain. Deformity still went on under the instruments and this is but an illustration of scores of cases. The patient was brought to me and under my care some years, no improvement; the mother anxiously took her to town again; she was under the best orthopœdic treatment for twelve months; on her return to me she was much worse, shorter in stature and the curve more decided I felt grieved that (though I made another apparatus) I could not do anything for her. However, the supports were shortly thrown aside and she lay upon her back on a hard board for some eighteen months or two years, when Sayre's work fell into her hands. I was consulted on the matter of Sayre's treatment, but I felt undecided. The young lady determined to give it a trial if I would again take her case in hand. The first

bandage was applied; when taken down from the suspender she was 2½ inches taller. Every day she practised self-suspension by my suspender (engraving 66), which was hung to a beam in her bedroom. The figure rapidly altered; in a few weeks I was sent for to remove the bandage and apply another, when she increased in height another inch; all her dresses had to be let down four inches. Daily suspension was still practised. My patient would suspend by her head and hands for some time every day, in which exercise she experienced great relief. In a few months the second bandage was removed and the third applied; not much difference in height, but muscles of the spine stronger and fast developing. The third bandage was worn five months, when I was sent for to apply the fourth; I found my patient wonderfully improved, and the tone of her general health very good. The height increased from the time of applying the first bandage 4½ inches, and the frame assumed its natural proportions.

While the curve in this case will never be entirely reduced, because not taken at an early stage, still the improvement and advantage of this treatment are so marked as to confer an incalculable boon on the patient.

Another advantage, my patient was a good one; she co-operated with me and tried all she could to get better; and here let me say it is perfectly useless for patients to begin unless they decide to take the proper course of treatment through a period of timenecessary to attain successful results.

It is five years since I published the above statement, and my patient has continued the bandages until now. I fitted the last plaster support in January, 1888. She is remarkably well and in the enjoyment of good health; these bandages have been in continuous use over a period of eight or nine years, being renewed every six, nine, or twelve months. The number she has had I cannot say. In addition to this she has continually practised self-suspension by the neck and hands by means of a suspender secured to a staple or crook fixed in the beam in her bedroom. The spine when suspended is almost straight, but the fulness of the ribs, previously referred to, from the twisting of the spine is still manifest. When the plaster of Paris is abandoned a light support must take its place. One remark I would make here—this is a case of a curved spine in a healthy subject. No patient with a diseased spine or with organic mischief could have continued such a persistent course of treatment. To these more sensitive cases I will now refer.

SPINAL PRESSURE, EFFUSION, CONCUSSION, OR INFLAMMATION OF THE SPINAL MEMBRANE.

These cases are amongst the most mysterious and complicated, inasmuch as there is no trace of curvature and the sensitive part is only detected by passing the fingers, or some warm substance down the spine. I will give you a few of the older cases, as the patients are now living.

CASE 101.—Miss Innals (Durston), patient of Dr. Foster's. This young woman, 30 years of age, had lain in bed for two years and half ; no power to stand or walk, frame well devoloped, spine perfectly straight.

She went off into a coma on my first entering the room; I stood over her and lifted her ; she seemed as dead as a log ; soon came round and could tell all we had been talking about ; frequently went off in this way. I felt I could not do any good and declined to have anything to do with the case. Some months after I was entreated to try something. I fitted a support to give rest and take off pressure ; when fitted, my arm was taken and she walked quietly across the bedroom. I left my patient and thought no more of the case.

CASE 102.—About the same time I was called to Broadmaine, Dorchester, by Mrs. Dukes, of Woodsford, to see a Mr. Watts, a patient who had been laid up five years from spine affection.

I gave little hope. The patient was stout, spine straight, no power in his legs, the result of concussion. Nothing so perplexing to the surgeon as cases of this kind ; patients lie year after year from effusion, pressure, concussion, or inflammation of the spinal membrane, and unless the pathological state of the spine is known they are brought to a stand. However, I made a support to take off the pressure, in which he found great relief. Four years passed away. Being called near Broadmaine to fit a leg to a gentleman who had lost his in the Bath accident. While driving through the village I called to see Mr. Watts, to my surprise found he had gradually grown better and was then following his business ; the support he still wore and could not do without it. Surprised at such results, I came home and wrote to Miss Innals not expecting a reply, thinking she may be dead. To my surprise I received a letter to say that she had grown better from the day I fitted the instrument and was now following her business as a dressmaker, and would soon come and see me.

I saw Miss Innals about twelve months ago, she had been then wearing her support eleven or twelve years, with one or two adjustments and recovering, but she could not do without it. Mr. Watts wore his support some years, but in time grew the better of it and left it off. The following is a letter received from him last year :—

BROADMAINE, DORSET, August 19th, 1887.

DEAR SIR,—I am very pleased to get a line from you. As to my progress, I am thankful to be able to say "well"—so well that I have left off wearing the spine support you made me, which proved quite a success in my recovery. I left it off three summers ago and have not put it on since. I never should have been restored without it.

Yours faithfully,

ALFRED WATTS.

In both the above cases there was no trace of curvature, and to all appearance well developed spines.

I will now bring this subject of the spine to a close by giving two more cases, one of effusion, the other of concussion.

SPINAL EFFUSION.

CASE 103.—I was sent for to treat a young lady of Bath, Miss B——. The case appeared to me so hopeless that I promised no success. I could only use the means and hope for the results. There was no curvature of any kind the spine being apparently well formed, but the patient suffered continuous pain up and down the spine. She had been in bed nearly three years, being at times troubled with the most frightful dreams. She was a kindly, patient, christian young woman of about 18. On sounding the spine I could trace the organic mischief by the flinching at the most sensitive parts. I said I can promise you no real help, though I am come provided with a poro plastic felt support to mould to your spine, your only hope is in fixing it and preventing this continual twisting and irritation. Rest still, hope on, hope on ever, but rest free from irritation. I arranged my moulding cylinder, heated by lamp—see engraving 78—and fixed the suspender to the ceiling. On helping my patient from bed, I found she could not stand, legs weak and contracted, and arms fragile. Well, I said, you cannot have this moulded now, you are so weakly, but she entreated me to continue (I detail thus to encourage sufferers). I sat my patient on a box and suspended her by the neck and wrist slightly, just to steady and support the spine whilst sitting. In a few minutes the support was moulded from hip to shoulder. Before I had finished my patient fainted, but as the wrists were firmly secured, no harm could come. I finished the work, then released her and allowed her head to rest on my shoulder for a few moments, she soon became conscious. I then took her in my arms and laid her in bed left her a few hours and came back again. She was very cheerful, much easier and felt thankful she had prevailed on me to mould the support. I left her and did not hear anything about her for twelve months or two years, when a lady wrote to me to say that Miss B—— had grown better from the day the support was fitted, was quite restored and had just married.

Some short time ago a medical gentleman referring to my cases said: Of course you have medical assistance with you in your difficult cases? Never had one yet, Sir, and I have treated thousands of different cases. How about the responsibility? The patients take that, or I will not touch them. Where I see there is a possibility of risk, I will have nothing to do with them.

SPINAL JAR, OR CONCUSSION.

CASE 104.—Mr. C——, Glasgow, a professional gentleman specialist and aurist. Received spinal injury some twenty-four years before being mechanically treated. When railway travelling was in its infancy and the carriage compartments simply divided by a low back rest, there was some violent shunting, which jerked the patient from his seat and caught him on the back of the seat just in the hollow of the back. This deprived him of partial power in his legs, so that for many years he had to lean forward on two sticks, dragging his toes one after the other at

every step when walking. The Doctor heard of me some ten years pre-previously, but scorned any idea of help. At Nottingham Lighting Exhibition he purchased one of my heating arrangements, on seeing a testimonial he sent to the manufacturer. I sent him my book, a page being turned down at the reference to a Glasgow patient. Most of these books and papers, after the letters are extracted, I put, he said, into the waste paper basket, for we are pestered with them. Seeing your book and the leaf turned down I put it back and condescended to read it. As I read, it grew in interest and I said the next day I will go to Chard and see Gillingham at once. As he was approaching the house leaning on his two props, I ran down the steps to meet him, put my hand upon his shoulder and said, "Physician, heal thyself." He smiled and said, "I am unable to do so; I am come to you." What do you wish to have done? You can do as you like with me. The doctor was under treatment about a week, two instruments were made to flex the feet and raise the toes and a support to assist the spine. When first adjusted he could walk erect to his hotel without dragging or tripping the toes.

The following is his letter twelve months after his visit:—

GLASGOW.

DEAR GILLINGHAM,—I must apologise for not writing earlier, but the time of the year reminds me I was with you last year. I hope you and yours are well. . . . . You will be glad to hear that I have derived great help from the use of the appliances; They have now become a part of myself. . . . . .

Yours very truly,
J. P. C.

WRY NECK AND DROP NECK.

These cases are sometimes very complicated and difficult to deal with. In some there is a kind of involuntary persistency to force against the pressure employed to put the head right and fix the head. An arrangement is made and fixed to a spinal apparatus, variously modified to meet the case, and similar to spinal arrangement to which the head is fixed, as in engraving 27.

Drop Neck—When the head drops forward it is sustained by a similar support to 27, or by a chin rest fixed to bust of ladies' stays, or a stem with rest for the chin rising from pelvic belt In sitting in a chair or bed a swing rest is suspended from the back of same.

SPINAL SUPPORTS.

All spinal supports are irksome on being first worn, and should be only put on for a few hours a day till used to them. Further, they should be seen to and adjusted every few months, especially with young patients, as the figure alters. The back should be rubbed every day (or often) after removing the support in the lines indicated (engraving 30). Any breakage or bending of the instrument should be seen to at once. A spine support worn year after year (in some cases) without being adjusted does more harm than good, inasmuch as the patient does not

get the benefit the support is intended to confer. This may be said of mechanism generally. Some may go to the other extreme; for example, I was sent for by a patient to make a spine support; on opening her wardrobe she turned out four or five spine supports, nicely made by different makers—full of complaints about them all—and of the one in use, on looking at it, I found it fitted nicely, and was all that could be desired. "What do you wish me to do?" "Make me something better." "Well, madam, to be honest, I cannot do it. What is the use of trying if you really cannot be benefitted."

Patients must excuse me for my straight talk, as they will know what to expect from me.—J. G.

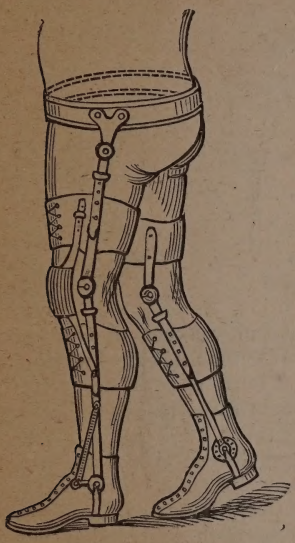
33

Engraving 33 illustrates an arrangement for round shoulders and stooping, which is provided with metal plates to press in the shoulders, draw back the arms, and expand the chest. The neglect of these cases sometimes lead to curvature. The spine chair (see engraving) is equally effective in pressing in the shoulders and expanding the chest. See article on same.

FIFTH SERIES.

VARIOUS MECHANICAL CASES.

Very frequently sufferers, when writing, say I do not see any case like mine illustrated in your catologue. To illustrate thousands of different cases would take a very large book. By way of helping inquiry I have multiplied the illustrations in this edition, so that patients may get a better idea of the more general ones and their plan of treatment.



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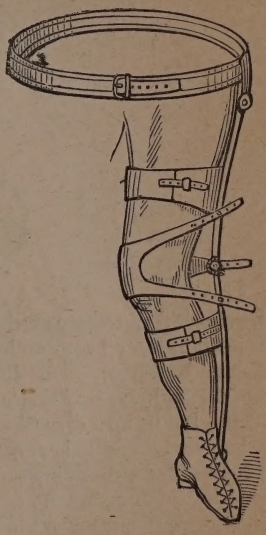

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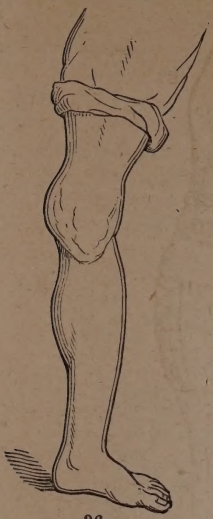
Illustration 34 is a mechanical arrangement for various forms of weakness and deformity, sometimes adjusted to one leg and not unfrequently to both, especially in cases of infantile paralysis, rickets, and general weakness, caused by injury or otherwise. The various joints are acted upon by means of eccentrics, locks, or springs, as the case may require, the mechanism being secured to a pelvic band and adjusted to the boots. In spinal cases, a spinal support is adjusted to the pelvic belt, extending to the arms, so that the whole frame is clothed with mechanism. These appliances are made to extend between the joints to allow for growth, and should have attention every few months, so that the patient may get the benefit the instruments are intended to confer.

Engraving 35 illustrates mechanical arrangement for knock-knee, sometimes on one knee, but more frequently both. The lateral support, instead of being on both sides, as in engraving 34, is only on the out-

side, secured to the boot and a pelvic band, with a triangular strap at the knee, thus giving the necessary support to the joint at the same time allowing motion.



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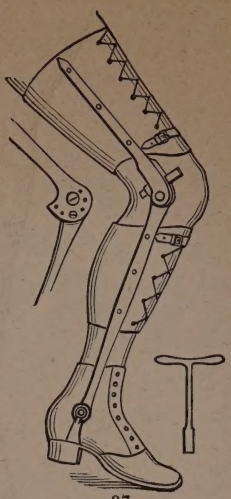

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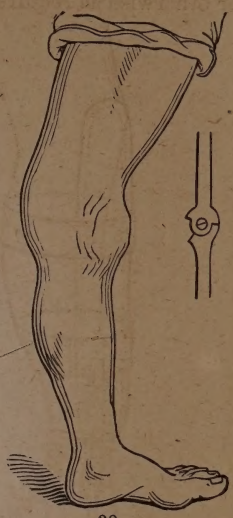

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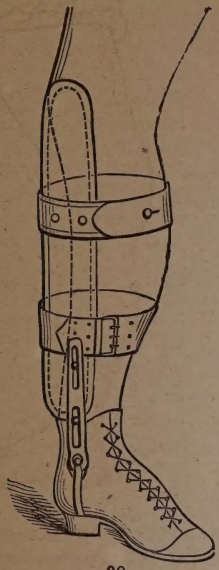
Engraving 36 illustrates enlargement and weakness of the knee joint. Sometimes it is very large and sensitive (commonly called white swelling, or housemaid's knee), and it may be hard or soft, according to the nature of the injury, or disease. In some cases the knee is so weakly that it will give in any direction and refuse to sustain the weight of the body. In other cases it is contracted and the condiles of the thigh-bone shifted forward and hanging over the front of tibia, or leg bone. In all cases the kind of instrument devised is that illustrated by engraving 37, without the rack and key motion, as used in contraction, but in the generality of these cases the knee-joint is fixed so as to arrest motion and irritation and give a straight leg, or a limb fixed at the angle of the contraction, the weight of body being taken in the thigh socket and transmitted through the lateral steels and heel of boot.

Engraving 37 illustrates an instrument for contraction of the knee-joint. On each side of the joint is a rack and worm motion and worked by a key, so that gradual extension may be kept up. The same or similar kind of arrangement is used for the contraction of elbow-joints. Where the tendons are very rigid and the contraction is beyond the reach of mechanism, a surgical operation may be necessary. In such a case the tendons are partly cut through, the other part extended, and the limb set in splints, so that a jelly substance forming in the cavity of the cut, consolidates and lengthens the tendon. Where the knee is contracted and not rigid, the contraction is overcome by springs acting on eccentrics from the knee or from time to time overcome by a set-joint, as at the back. Engraving 38 illustrates a knee deprived of its natural lock, so that

it gives backwards from weakness of the flexors of the thigh. The instrument supplied is similar to engraving 37, with lateral stays and lock or catch joint) as in front of engraving. In some cases the knee is set or otherwise as required.



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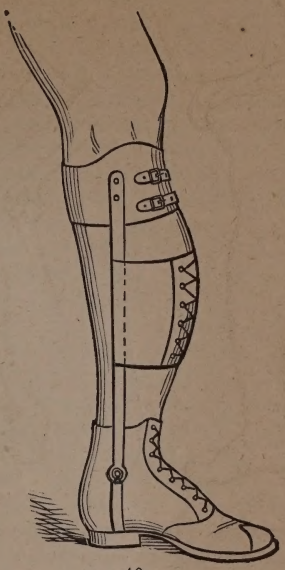


40

BOWED LEGS, RICKETS, OR SOFT BONES,

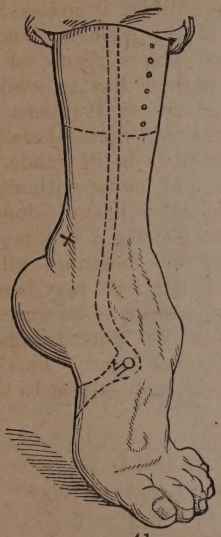
so frequent with infants and children, arise from want of lime or earthy matter in the bones ; old people, whose bones are brittle, have too much of what rickety children are deficient of. The bones being soft give with the weight of the child. Mothers should not be anxious to put rickety children on their legs too soon, but let them crawl.

In simple cases children in time grow out of it, without the aid of mechanism, as the bones get longer and stiffer. In others the child is assisted by light steel supports up the legs, until the bones are sufficiently rigid and straight to do without them. Parents naturally get much alarmed, but most cases under my care and knowledge have grown out of it.

Engraving 39 illustrates a bowed or rickety leg with lateral support. The padded metal splint is secured to a jointed steel in the boot and takes its bearing on the inside of the knee and the leg materially helped by bands, or broad straps, drawn transversely round the lower limb.

Engraving 40 illustrates a case where the leg is bowed posteriorally forward. In such cases there are two lateral steels, one on each side, with a laced stay in front. Force is not employed, only just the necessary resistance to help nature, in time the legs will correct themselves.

When cases from neglect have become decided and set—that is to say the bones having become hardened and with little chance of being straightened by mechanism or growth—then the bones are broken, or a wedge piece taken out and reset. This is only done in cases of necessity. Painful as this may seem it causes very little risk or pain. I remember the case of a child with both legs and thighs so bad that the limbs were interlocked and locomotion rendered impossible. The child was placed under choloform, both thighs and legs were broken and reset. When the bones were fairly set I clothed the child in mechanism to the waist, similar to that illustrated by engraving 34, the limbs became straight and the child was restored. Without the skill of the operation it must have been a cripple for life. This was a patient of Mr. F. R. Cross, F.R.C.S., Clifton, who sent for me to assist mechanically.



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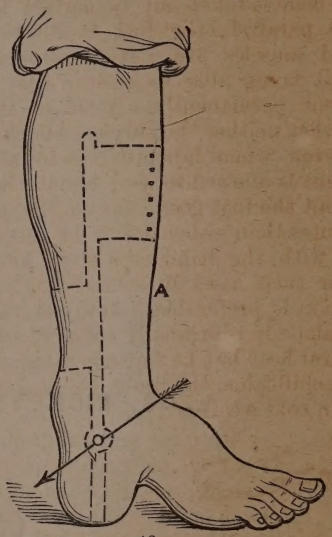
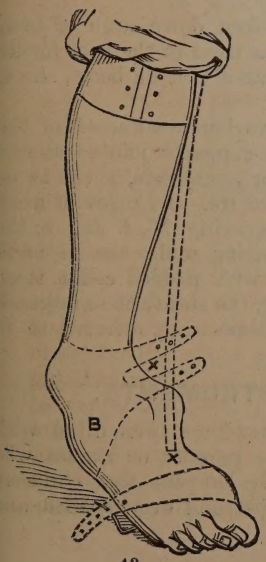


42

Engravings 41 and 42 illustrate deformities of the feet. They arise from various causes, sometimes they are congenital, or they may be the result of accident, but most frequently are the result of infantile paralysis.

No. 41.—Contraction of the tendon achilles. In such cases it is nipped at the point, crossed, and then extended. An instrument is adjusted to boot as dotted lines. The leverage (by throwing the centre forward) extends the tendon. Where the tendon is extended and brought down a catch is supplied, in some cases, to the ankle-joint to prevent it contracting. When the case is stubborn, and the articulating surfaces of the joint deformed, a high-heel boot is supplied, supported by a sheath and two lateral stays. No. 42 is the reverse of 41—rupture of the tendon achilles, supported by two lateral stays, secured to boot and following dotted lines, with a catch forward to prevent the strain on the relaxed tendon and the foot flexing on the leg. No. 43.—Dislo-

cation of the ankle from partial paralysis of the leg or accident, where one set of muscles having lost their power the others contract and draw the foot into deformity. Simple cases may be corrected mechanically by means of a night and day instrument. The night shoe (engraving 44) sets the foot by means of single or double rack and pinion motion, worked by key, the foot having been firmly secured in the metal shoe; this is worn in bed. The day instrument is secured to the boot and follows the dotted lines; the steels may be on one or both sides as required. When these cases are stubborn it is necessary to cut the tendons, set the foot in the night shoe, and there remain until so far recovered as to permit the fitting of instrument and walking boot. Where the articulating surfaces of the bones are deformed a wedge piece of bone is taken out to correct the foot. When it arises from infantile paralysis the foot is corrected as far as possible, but the paralyzed muscles are never restored—neither the surgeon or the mechanist being able to restore life, so the patient has to wear an instrument permanently. Some of these cases are so stubborn and difficult that neither the surgeon nor the mechanist can show satisfactory results, even when fair progress towards recovery is being made. If the patient is allowed to run about the bedroom or house without the instrument the foot goes over on the ankle, and more harm is done in ten minutes than either doctor or mechanist can put right in a month. Friction with the hand or a flesh glove, night and morning, will do much for such cases in stimulating vitality. Electricity may benefit, but friction is preferable. Many of the simpler cases may be cured by friction alone if continually followed—the rubber not only brings up the natural heat but he imparts vitality from his own hand. This also prevents chilblains, the limbs being generally cold and subject to these attacks in cold weather.



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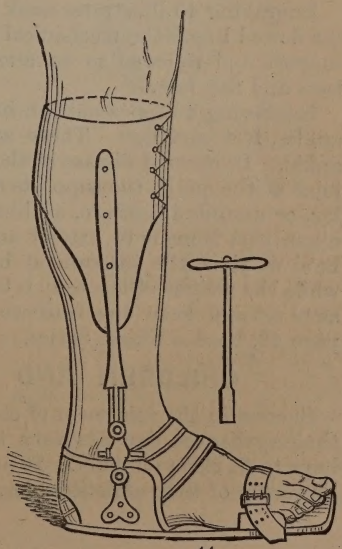

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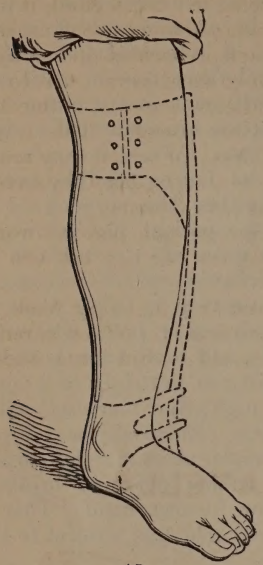
I would here add that while most cases are benefitted and not a few restored, I have had others where, after having been repeatedly operated on, and continually supplied with modifications in the mechanical treatment, stimulated by friction and electricity, all effort has been unsuccessful in restoring or even improving the feet; still the patients cannot do without instruments and support.



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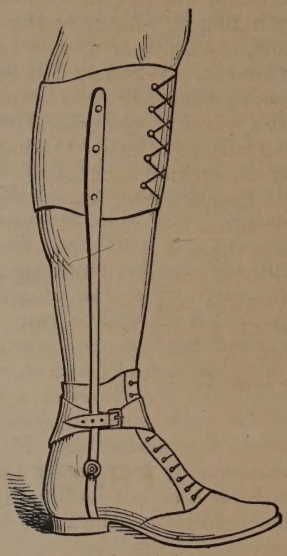


46

Engraving 45 illustrates weak ankle and broken down arch of foot, the dotted line is the mechanical arrangement as fixed in the boot for its support and referred to on another page in an article on boots, shoes, lasts and flat feet.

Engraving 46 represents an instrument for various weaknesses of the ankles, feet and legs There are two lateral supports jointed at the ankle. In cases of disease of the ankle-joint, or anchylosis, there is no joint at the ankle, the supports making it a fixture. In cases of weak leg, or ununited fracture, as illustrated in engraving 16, F and 8, the upper part is made to extend and take its bearing under the knee and head of tibia, the instrument being supplied with padded collar, thus, while the weight of the body is taken off the leg, the sheath is so adjusted as to set and keep the fracture. As in S. Bear's case, referred to in page 42, headed Third Series.

CHILDREN AND THEIR INSTRUMENTS.

Success in the treatment of children after they have been fitted with their appliances, depends very much upon the parents or nurses who have to fit them on daily. It not unfrequently happens that children, by reason of their afflictions, have been indulged and even spoiled, and

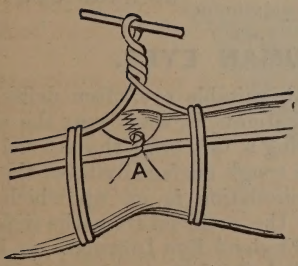
this mistaken kindness is a species of cruelty, which not only injures the temperament of the patient, but makes it unpleasant for all who have to do with the child. Therefore, kindness with firmness is necessary in treating such cases.

With all surgical appliances there is a certain amount of irksomeness and difficulty to be overcome. An adult who has arrived at years of discretion, will put up with this and overcome it ; but a child, if in anyway indulged, will try to throw off the appliance, and as soon as he complains, the nurse or mother loosens the straps or buckles and away goes the benefit. When such cases are brought to me I never care to touch them, as they bring no satisfaction to patients, parents, or mechanist. It is a waste of money and the appliances are useless. This is why I sometimes recommend the hospital for children, for whilst they are there they are treated kindly—not pampered by nostrums, but they have to do what they are told, which is not always the case at home.

Sometimes it happens that a patient is almost one person's work and where there is a long family, or other cares, they do not get the necessary attention that their cases need.

In some hospitals there are wards set apart at so much per week, where patients get the best of skill, attention and board. When parents can afford this it is the best and wisest course to take.—See hints under the heading Regulations, &c.

FRACTURED PATELLA.



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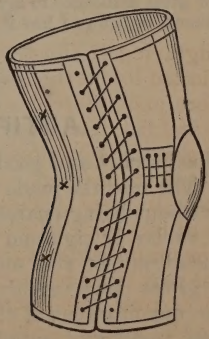

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After the swelling has subsided the best means of bringing about close union and preventing the division of the fracture, by the contraction of the rectus muscle, which in bad cases leaves a gap, is to place some strips of strong plaster up the sides and front of the knee, leaving three loops over the knee-cap, then securing long strips by the transverse bands of plaster. When the plaster has firmly adhered, take a penholder or pencil, place in the loop and twist until the fracture is closely united,

tie the coil close to the knee at the three points, then fix the limb in splints or secure it with a plaster of Paris knee-cap with a flat steel inserted at back and slightly curved to shape of leg, the bandage not being put on tight, but extending six or seven inches above and below the knee, avoiding pressure round the patella and sensitive part of the knee. I have treated several cases in this way with success.

When the bandage and plaster is removed the knee is supplied with knee-cap, the front part laced in two sections, thus drawing down the rectus muscles, keeping the fracture until such times as the knee-cap can be dispensed with.

In case where there is imperfect union and the rectus muscle has sprung up the leg, this being the pulley that brings the knee forward and keeps the joint, a spring to supply the rectus muscle is inserted in the back of the knee cap to drive the leg forward and allow of sufficient motion for ordinary walking, but not permitting the knee to be bent at right angles.

A similar kind of cap is supplied for weak and sprained knees without the steel spring at the back and without the two laced sections in front. Sometimes under sudden strain the lunar cartilage of the knee-joint may scale off the head of the tibid, when the cartilage becomes floating—that is to say the senovial fluid gets under and prevents union; when this is the case the cartilage can be taken between the thumb and finger like the edges of a penny-piece and moved from side to side. The knee-cap is very effective in keeping and helping the knee. Elastic caps are useless in such cases, as they do not give the necessary resistance.

14, Central Meat Market, London, September 10th, 1880.

Dear Sir,—The knee cap you supplied me with about five weeks since I have found of great assistance to my sprained knee, and I can walk any reasonable distance, but without, or before I had it, I could not stand five hours at my business.

I am, dear sir, yours truly,
RICHARD SAWTELL.

ARTIFICIAL HUMAN EYES.

A good socket and good stump, with suitable eye, often defies detection. The mistake made with many patients is, they wear the eye too long without being enamelled or getting a new one; the enamel wears off in twelve or eighteen months, the rough surface irritates the sensitive membrane of the socket, and granulation is set up, which sometimes grows very rapidly, and forces the artificial from the socket. I held an appointment at the West of England Eye Infirmary, at Exeter, for two years, and supplied and fitted the eyes to the patients when required, and have seen some

MOST STUBBORN CASES OF GRANULATION FROM THE LONG USE OF AN EYE.

When irritation is set up the eye should be taken out and the socket washed with weak alum water. Where patients require eyes they should come to have them fitted. I beg to state that I do not take any

risk by post, either to and from the artist or to and from the patient. Eyes may crack with change of temperature, or otherwise break in stamping or carriage.

IMPROVEMENT ON EXCISING THE EYE.

Not long since Mr. F. R. Cross, F.R.C.S., of Clifton, directed my attention to an interesting case at the Bristol Eye Infirmary; I think it was either the first or second case. First I would say that when the eye is excised or extracted a portion of the eyeball or capsule is left; this forms the stump on which the artificial eye rests; with a good stump there is a fair amount of motion, when otherwise it is too set. At an operation on the excising the eye it was suggested by Dr. Muels to enclose in the stump or capsule a small glass ball or marble; this would give roundness to the stump, obviate in a measure the hollow sinking, and furnish a good stump for the artificial eye to rest and work on. This gives a decided improvement to the features. The patient I saw was doing well, and I have since ascertained from Mr. Cross that the cases thus treated under his care are progressing successfully.

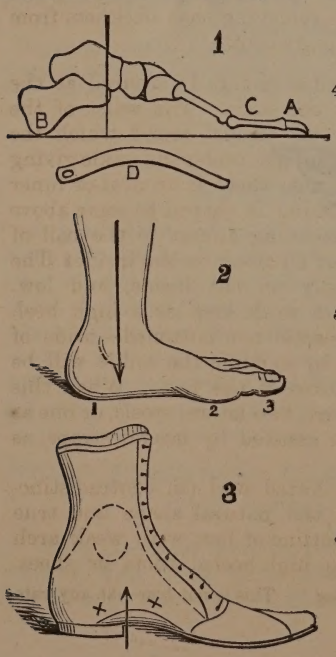
SIXTH SERIES.

Affections of the Feet & Toes, Weak Ankles, Broken-down Arch of Feet, Boots, Lasts, and their Construction.

Many are the afflictions of the feet, but the more general are the giving down of its arch. This causes considerable pain and inconvenience, inasmuch as the weight of the body comes in a direct line through the broken arch instead of taken its bearing against the abutments of the heel, joint, and toe.

This weakness will sometimes manifest itself in one foot, but more frequently in both. It is often caused by over exertion and long and continuous standing, so that the tendons, being unequal to the exertion, give way, the arch sinks, and the foot elongates. This may come on suddenly in a healthy subject by over exercise, but more frequently it is a sign of constitutional weakness.

The patient, to use a general term, hobbles, and turns his feet out to save rising on the pivet, or great toe, as in ordinary walking. These cases, when taken in time—in their early stage—can be improved, materially helped, and restored; but when once the arch has gone down, though it can be materially helped, it is rarely, if ever, restored. It has never been, as far as I know, my good fortune to restore one. Sufferers must excuse my frank and out-spoken explanation of my cases, with their possibilities and difficulties, as it is my desire to publish a book, that will give a clear conception of them, as far as my own experience and observation will allow Other mechanists may have different experiences, and, as the best of us are not infallible, they may materially differ from mine.



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Illustrations 1, 2, 3, 4, 5, 6, Engravings 49 to 54, explain the former observations on weak arch of foot and its mode of treatment.

50

No. 1 represents the natural arch and points of bearing, A B C, &c., the line through the centre of arch is that of the leg bone, or pillar that supports the upper structure.

No. 2 illustrates the arch of foot where broken down, so that the weight, instead of being sustained on the key stones, is taken in the direction of the arrow on to the distressed arch, the heel projects and the foot elongates.

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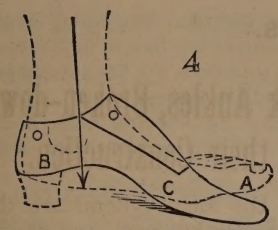
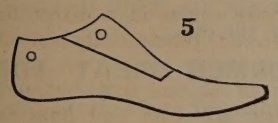
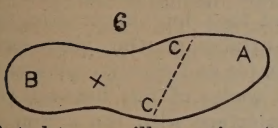


52 No. 3 gives the form and style of boot worn in such cases to relieve the waist and help the foot. First, there must be a suitable last made, especially in confirmed cases, any last will not do. Boots purchased ready made and constructed on the general plan will not suit the feet, but, on the contrary cause pain, distort, injure, and thus aggravate them. Now, I have no objection to supply the last, but I do object to make the boots, or get them made (especially after the first pair). *Why? Because I am not a boot-maker, I have gone beyond my last and any practical man can make them on following the instructions given.





54 The boot, you will observe, is not made on a last with a hollow waist, or pointed toe, as illustration 4, but on one with almost a flat waist and the toe and heel turned up a little—boat fashion, No 5. (The hollow waist last is unnatural, it may be called fashionable. For example, in a healthy foot when standing bare the hollow is on the inside and it bears nearly the whole line on the outside.) This gives what the bootmaker calls spring to the last, so that when the foot passes into the boot the toe presses down and makes a well cut boot, fit and set properly, removing that slackness from the quarter and ankle, experienced in ordinary boots.

Between the inner and outer sole is fixed a spring, D, secured at the heel end, to give with pressure and assist the arch. The waist of the boot is almost flat, slightly hollowed on the inside, round which the innersole is blocked in a half circle, extending just under the ankle giving the hollow part support. In addition to this there is an oval or luner pad inserted under the waist and the stiffening is shaped to come above the ankle, as shewn by dotted line, and extending almost to the ball of the great toe, giving long and solid support all along on the inside. The heel of the boot is made long, especially on the inside, and low. Nothing is so painful and destructive to a weak arch as a high heel. Further, the boots should be laced—not elastic nor buttoned—made of flexible material, not to lace close at first, by so doing the ankle will be braced and thus strengthening the ligatures of the feet. When this kind of boot fails to give the needed support, two lateral steels, or one as the case requires, are adjusted and further assisted by lateral straps, as previously illustrated, Engraving 45.

No. 4 illustrates an unnatural last with dotted heel (in contradistinction to 5 and 6, which are made after the natural shape and true anatomy of the human foot). A dotted outline of foot with weak arch is given to show the absurdity of wearing high-heeled boots or shoes.

*It is said "There is no Bootmaker beyond his last." This is not true—at any rate in my case.

The weight coming through the waist of boot, the tendency is to invert the arch and crush the foot entirely. The moment the foot is in the boot the waist goes down, the heel goes back, the toes turn up, the shoe gapes loose at the ankle and slops. Yet, if you explain this to some fashionably dressed ladies they will not see it nor give up wearing high heels. There is the right and proper course to take and you cannot make boots to fit the head and feet at the same time.

No. 6 shows the tread of the last and the points of bearing A B C C, in contradistinction to the last (No. 4) that narrows the tread, nips the joint, and turns the great toe in out of its proper line, while the smaller toes, from their cramped position, ride one on the other.

INFLAMED, DISEASED AND DEFORMED GREAT TOE.

In cases where the great toe joint is enlarged and is turned in, a night instrument is used, consisting of a steel spring, sandled to the middle of the foot for drawing out the great toe; but this is often too painful, especially when the articulating surfaces of the joint have developed with the deformity. The more simple and effective plan is to give width in the boots, and then place a wedge of felt between the great and first small toe; this does not interfere with the action of walking, but tends gradually to open the toes and bring the great toe back to its normal line; of course the pad must be slightly thickened as the toe improves. The felt can be supplied on application.

INFLAMED OR DISEASED TOE-JOINT.

In these cases motion to the toe means constant irritation. To arrest motion, where a sufferer cannot give up walking, a boot is made similar to No. 3, with low cap, so that the foot will slide in easily; and between the inner and outer soles is inserted a thin steel sole, to prevent movement of the joint and prevent walking from heel to toe—but flat, the heel being low and broad.

To follow is an article on weak feet, written before the foregoing illustrations were given; it may, in some measure, be a repetition, but will help to elucidate the absurdities of fashion and treatment of the feet.

BOOTS AND SHOES.

Where mechanism is required it is imperative that I should make the first boots to ensure a perfect fitting of the instruments, after which the patient's own bootmaker must make them. The plan adopted is as follows:—The bootmaker makes the boot or boots as far as the welt, it is then sent to me; I fix the new or old steel and then send it back, through the post, to be finished. This is but little trouble to the bootmaker, beyond drawing the last and sending it, and it saves risk and inconvenience. If I were to make boots, or continue to do so, for all my patients I should have to give up surgical mechanism. Not only so, but some are so inconsiderate that should there be a little dissatisfaction with them, or should they not suit, they coolly try to return the boots on my hands, after I have put myself to the inconvenience of getting them made. I cannot be subject to this sort of thing. Let the local bootmaker make the boot, and if he fixes the steels see that the centres or joints are the same distance from heel's seam, or round the heel, as in old ones. Cork boots, where no mechanism is required, must be made by a practical bootmaker, but I am ready and pleased to give any instructions.

WEAK ANKLES AND FLAT FEET,

OR

BROKEN-DOWN ARCH OF FOOT.

INJURIES EFFECTED BY FASHIONABLE BOOTS.

What is more destructive to the anatomy of the human foot than the present fashion—straight-bottomed shoes, with low quarters and high heels? The natural use of the foot is perverted; the weight of the body, instead of coming down on the arch of the foot, through the leg-bone, which by nature is constructed to bear the weight, is transmitted through the foot to the toes, and the toes are not constructed to bear such unnatural pressure and action. The high heel points the toe so that the foot and leg are almost in a line; consequently, the arch of the foot is of little service; and with these beautiful so called shoes the ladies of our advanced age wear short dresses, that they may show to passers-by this perverted anatomy. When God made man He made him perfect, and if an arch was not necessary to the foot He would not have given it. and if man had required an extra piece on to his heel depend upon it it would have been put there. God never sent His work for man to improve it, much less to distort it, neither does He smile at the alteration.

We have spoken of the heel and arch of the foot; now a word about the toes and joints. In these straight, narrow shoes, the joints, instead of being full wide and semi-circled on the outside, are compressed and narrowed, so that the broad base on which it was intended that man should stand has become contracted, and instead of the toes spreading and expanding, they have to ride one over the other, tortured with corns and bunions. The great toe, which is the pivot on which the whole body turns, and helps a man forward in his walk, should be nearly straight with the heel; but the narrow shoe turns the point of the great toe out of its course, over to the little ones; hence there is a full joint at the great toe, pressure on which causes a bunion, as well as growing-in toe-nails. Not only so, but if the toe is turned out of its course thus, how can it become the proper pivot on which the body must turn? This is not all—see the sprained ankles and broken legs, &c Each foot is said to have three points of bearing—one at the great toe, one at the heel, and one at the outside joint. If the foot were turned up, and the dots were placed on the foot and lined from dot to dot, they would form a tripod. A thing of three legs can stand, but a thing of two cannot; so by wearing a cramped, straight shoe, the dot on the outside joint is compressed nearly in a line with the dot at the toe and heel, consequently there are but two points to stand on instead of three, and the grip we should have upon the ground is sacrificed. The broader the base, the firmer the power. If you see a fine tree it has a good root, that it may grip the earth and stand the tempest. If

you build a house you seek a good foundation, but people are wanting in common sense about their own foundations.

Now a word for the cure of cramped feet. Let a man with a well-formed foot stand upon a sheet of paper. While standing thus, the toes spread out, the outside joint becomes full and semi-circular; the inside one and great toe are almost straight, and in a line with the heel. Strike round the foot while standing thus, with a pencil, and you will find, from the straightness of the toe and heel, the hollow of the waist on the inside, with the fullness of the outside joint, that there is a peculiar twist with the foot, and this peculiar and natural twist should be made (with suitable upper leathers) in the last, so that the boot should fit the foot, instead of the foot being made to fit the boot. I have advocated boots made to the anatomy of the foot for years; but in nine cases out of ten the wearer prefers fashion to anatomy. The look of the anatomical boot is so opposed to fashion that the wearer generally does not like the look of it—it does not suit the eye. When in the boot business, out of a large number of customers, I modelled lasts for twenty sensible men. I never find any difficulty in fitting a foot, but the greatest difficulty I find is putting up with people's nonsense in trying to fit their heads. I would add that there is no such benefactor to the community at large as a good bootmaker, and I positively affirm that there is no tradesman in the world so harassed and badly paid for his brains. He may bestow any amount of labour upon his lasts, and if he were to charge for the time taken up about them, beyond the ordinary price for his boots, the generality of customers would begrudge to pay. Bootmakers cannot live on the air any more than others, and if they were to become anatomical instead of fashionable bootmakers the majority of them would have no trade at all.

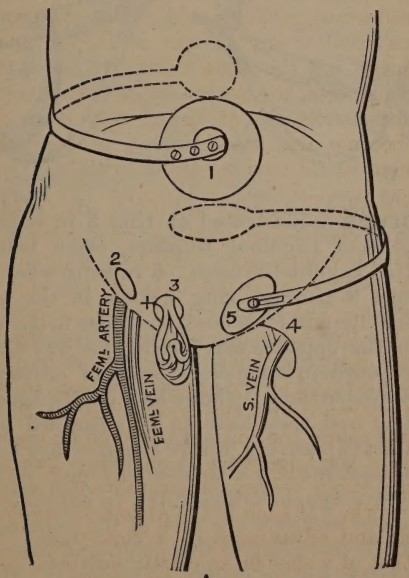
Children with a tendency to weak ankles should avoid low shoes, loose boots, high heels, and elastic-side boots—should wear good laced boots, wide bottoms and soft vamps, good stiffening or quarters, broad-seated and toppice heels, with close-lacing flexible leg, and the interior on Gillingham's principle. The flexible close-fitting "laced-leg" braces the ankles, yet allows the free extension and flexion of the foot in walking; and answers to the ligatures that keep the arch of the foot. An illustration may be conveyed by the practice resorted to by labouring men of wearing a buckle strap round the wrist; just at this point there is a ligature which binds round the cords of the hand and serves as a fulcrum on which the cords of the fingers act as so many levers. The artificial ligature—the buckle strap—saves the strain on the natural ligature and helps to do heavy work. If such is the assistance rendered to a healthy member, the effects and advantages of a close-fitting flexible leg to a weak ankle over that of a shoe or an elastic side boot, must be obvious.

SEVENTH SERIES.

RUPTURES, TRUSSES, ETC.

Large numbers of both sexes suffer from ruptures of one form or another, and to relieve those so afflicted, different kinds of trusses have from time to time been invented. Some profess to cure all kinds of rupture by one kind of truss, which is simply ridiculous, while others, still more so, profess to cure without a truss of any kind.

Every truss-maker has faith in his own plan of treatment and thinks his truss the best. There are many excellent trusses by different makers equally successful in accomplishing similar results and as no rule can be laid down the mechanist must exercise his own judgment in dealing with his cases. What is most injurious and fatal to success is an indiscriminate purchase of trusses. It is most important that it should be rightly adjusted and that the spring be the right gauge. In special cases the pad may be flat, concave, convex, or otherwise. J. G. has now had 20 years' experience in treating rupture and has been most successful with a large number of sufferers and has made this branch a special feature.



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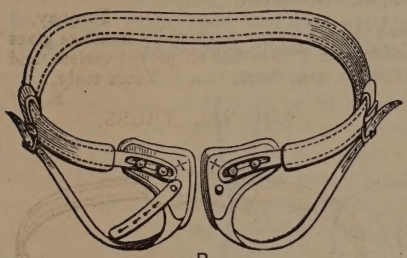
Most patients will naturally ask the question—"What is a rupture?" A rupture is the giving way of the abdominal wall at its weakest point. It may occur in various parts of the body, but most frequently in the

groin ; it is very general, inasmuch as about five out of every ten, both male and female, are ruptured somewhere From statistics published by the London Truss Society for relief of the poor, it appears that since their commencement they have relieved 425,000 sufferers ; nearly 10,000 men and women were relieved in 1886, and in one year over 600 children under one year of age, and yet there are thousands who neglect themselves and wear no support. Engraving A illustrates various ruptures. The oval ring 2 is the weak part, and where an ordinary rupture first makes its appearance, being where the blood vessels penetrate the wall of the abdomen to supply the extremities In cases of sudden strain, this wall gives way round the vessels and the intestine forces its way through the aperture and lodges at the point X, like an egg, or walnut. This is called an ordinary, or Inguinal Rupture, and will recede through the ring on pressure from the fingers ; could they remain, they would sustain it but a properly adjusted pad and spring supplies their place.

DOUBLE SCROTUM TRUSS.



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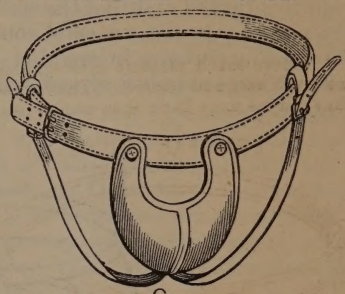
SUSPENSORY PURSE.



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Scrotal Rupture is illustrated at ring 3 in engraving A, and it generally devolves from Inguinal Rupture, often being the result of neglect or badly fitted Inguinal Trusses. A rupture when it has forced its way beyond the spot X through ring 3, down in the scrotum, becomes scrotal the intestine falling in folds down the purse in the male and lodging in the groin (or, in the opposite sex, forcing its way through the aperture 4). These ruptures in some cases (and not unfrequently on both sides) assume large proportions, as large as a child's head. No truss can possibly control them and they have to be sustained by a suspensory, engraving C. On first appearing, before the aperture becomes too large the rupture may be sustained by a truss of my own construction introduced about 15 years ago, and illustrated in engraving B. Here the angle of the pad comes well over the arch of the pubis at the point X on the pad, to prevent its travelling to this point and descending. Should the ring 3 become large, success cannot be promised ; the least shifting of the pad by stepping high or sitting in a low chair, coughing, or straining, it slips under the pad instantly, like water behind a hatch. Therefore I never promise anything in such cases, for to attempt to control is to attempt the impossible. Recently, I met with three patients with no less than six, seven, and eight trusses each, some of them of the most costly

and elaborate construction, by different makers; every one of them failed except in one case, and two had to abandon them and use the suspensory C. How sufferers are gulled by answering advertisements for trusses that will cure every kind of rupture. In some long standing cases of Scrotal Rupture where it is large, patients are easier with the rupture down and suspended, than when put back. One case before my mind is that of a working man with a rupture as large as an infant's head. I supplied him with a suspensory; on seeing an advertisement of a specialist, he paid him a visit, fee one guinea and a cure promised for the modest sum of thirty pounds. A cure—impossible without an operation! The risk would be so great that not one surgeon in a thousand would attempt it, unless in case of emergency, or strangulation. In some cases there are features that will admit of its being reduced, but how about all the failures? Perform a miracle and charge five times as much as any practical surgeon would for an ordinary operation and you will do a trade. Some persons do not believe in honesty, and with others it is the most criminal thing to tell the truth.

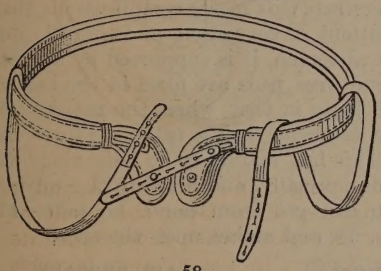
FROM A MEDICAL DOCTOR.

Torquay.

"I have much pleasure in forwarding you cheque; your Suspensory Bandage gives me much ease and comfort. The number of trusses I have had all proved useless, and they did me more harm than good when I tried to wear them. Yours truly,

S.A."

FEMORAL TRUSS.



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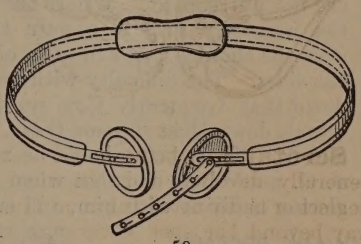
INGUINAL TRUSS.



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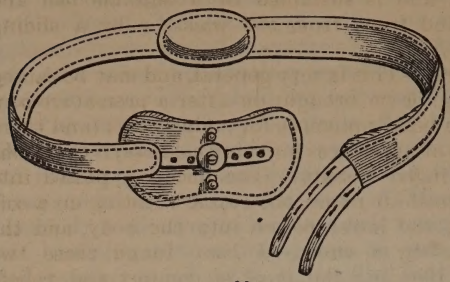
Femoral Rupture makes it appearance where the vein enters the thigh at the aperture, or ring marked 4, and is more frequent by ten to one in women as compared with men. It is sustained by a suitable curved spring and pad.

Strangulation or Stoppage.—This occurs when the intestine continually forces its way through a small aperture and becomes too large to return, especially when inflamed by cold or otherwise (these cases illustrate the folly of neglecting to wear a truss). In such cases an operation is often necessary and many a valuable life has been thrown away from neglect. On the first symptom, the patient should lie on his back, tilt the lower part of the back, flex the thigh, also bathe with warm flannels, or take a warm bath. If the rupture will not recede, send for a medical practitioner.

Umbilical Rupture occurs at the navel and is sustained by a truss, as 1, engraving A, the pad being made concave or convex as the case requires.

ABDOMINAL TRUSS.



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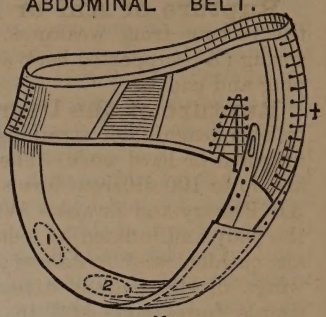
ABDOMINAL BELT.



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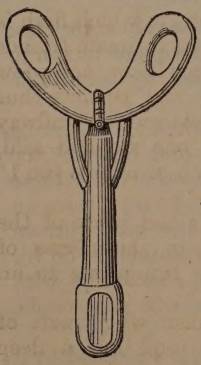
Abdominal Weakness.—This is the bearing down in persons of full habit or otherwise, generally in women after confinement. In such case the patient generally places both hands to support the bowel; this gives relief. The abdominal truss, or properly-fitting abdominal belt (as illustrated), is a most effectual support, and should be worn by those needing this kind of help. Where there is this bearing down, and at the same time an umbilical rupture, a padded plate is fixed in the belt opposite the X in front. Where there is a falling down of the ani (or rectum) or the uteri, an arrangement suited to the case is fixed at 1 and 2 on the understrap, this meets complications that are not unfrequent. Where the patient is very stout and there is not the necessary grip to sustain the abdomen, it is supported by a brace over the shoulder, and in cases of ruptures pads are fixed in the belt at the sides. The difficulty with most belts is that when the patient sits down they frequently turn up, the tendency being rather to force the bowels down than support them. This has mainly to do with their cut and fit. These belts should be made specially, and fitted to the wearer. J. G. would here add that when he can get from home he takes his sewing machine with him, and cuts, fits and makes upon the spot.

ZWANK PESSARY.



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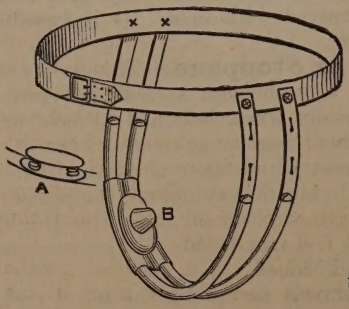
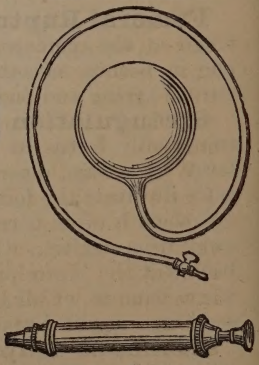
ANI TRUSS.



63

AIR PESSARY.



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Rupture of Ani or Rectum.—This is the falling down of the rectum from weakness, and is sustained by a suitable pad and spring (A), supported back and front from the waist or by a sliding plug and pad B.

Rupture of the Uteri.—This is very general, and may be caused by over-reaching or straining, or be brought on after a premature confinement or hard work. The best appliances for simple cases (and there are 50 to 100 different forms of appliances for this weakness) is the Globe Air Pessary and Zwank's Winged Pessary. The former is passed into the body and inflated by a small air pump, the rupture resting on a soft air cushion well sustained; the latter passes into the body, and the wings of the pessary extend by a screw. I have found these two simple forms successful in affording the greatest comfort and relief; but the more complicated cases are best treated by a medical practitioner.

For the the information of sufferers I have gone as far as I can in explaining with propriety. This rupture question is a delicate one, but nothing is too delicate to treat *when human suffering is to be relieved and valuable lives are to be saved*; and here let me say that numbers loose their lives and suffer a life of martyrdom from a sense of mock-modesty, and because they will not apply for the needed relief. One case out of numbers: this patient had suffered for years, at times lying on the floor or lawn to reduce the rupture. "I came to your door, sir," she said, "some weeks ago, and went away, having no courage to knock, and now I am obliged to come." In ten minutes the rupture was replaced and sustained. The patient now enjoys life without risk or suffering. Those similarly situated may take the lesson, for there are thousands who will not seek help.

Testimony is not furnished in hernia cases, as large numbers wear these appliances whose cases are only known to the mechanist and themselves.

STRICTURE.

Those in health know comparatively little of the ills to which flesh is heir to; thousands suffer from afflictions that their most intimate friends know nothing of—they are hidden and quietly borne. Now, not a few suffer from stricture. I have on several occasions met persons thus suffering, more than once when travelling and in lavatories at railway stations. I tipped a gentleman on the shoulder one day and said, "Why suffer thus when the means are within reach to relieve you?" I gave him the address where to get what he needed.

Now I do not treat of stricture myself; this is the work of the skilful practitioner; but I can direct a sufferer to the means of alleviation; I feel pleasure in so doing; and this brings me to an invention in which I feel interested.

Some years ago I called on a medical gentleman who treats of stricture; he always was exceedingly kind to me, and felt a deep interest in my success. He handed me an India-rubber catheter, with

a mushroom top and a hole behind it. "This thing fails, and will not do its work. Can you suggest anything that can be passed into the bladder, retain itself, and be withdrawn at pleasure?" I saw what was wanted in an instant, and drew with my pencil the arrangement. "I can see that is the thing; I will send for a manufacturer and get it made." Some months after I was in Town, and called as usual, when the gentleman said, "You remember when last you were here I asked you for a suggestion?" "Yes." He went across the room and brought the winged catheter. "There is the thing you suggested; that has been in a man's bladder four months, and, what is most remarkable, the man is in his saddle half his time, being a jockey. It will be the means of saving many valuable lives, and where I should otherwise get a good sum for an operation, a sufferer can now relieve himself for a few shillings." You see this gentleman by this invention, laid the axe at the root of a certain section of his own practice, so that the sufferer might get the benefit.

(Mr. Barnard Holt's Self-retained Winged Catheters; to be had of A. C. Baker, 244 and 245, High Holborn, London. Illustrated in S. Maw, Son & Thomson's Catalogue, page 163; and in Arnold & Son's Catalogue, page 429.)

URINALS, &c.

These are very useful when a proper adjustment can be made. Some of them are unsatisfactory, not in the make, but in meeting the needs of the case. (These things are not returnable.)

AIR CUSHIONS.

These are not kept in stock, but made to order and supplied fresh from the Manufacturer.

CRUTCHES.

These are made plain, or with single or double spring heads. Price according to quality and finish. In ordering, measure from close under the arms to the floor as a guide for length.

65

ELASTIC STOCKINGS, KNEE-CAPS, &C.

These are not kept in stock, but are supplied fresh to measure from the Manufacturers. No goods deteriorate so much with keeping as elastic goods and they are much better had fresh from the loom

Price in cotton and silk according to quality, of which there are first, second and third. In measuring for knee-cap or stocking take the circumference at the points marked with a tape measure. Measure close and send the same. Anything special or extra in size charged extra.

ELECTRIC AND GALVANIC BATTERIES AND ELECTRO-MAGNETIC MACHINES.

These machines and batteries vary in price, according to the make and finish. Some are more constant and durable than others, but all are much the same in producing similar results. They are of great value in stimulating nervous energy. A good Electric Machine or Galvanic Battery may range in price from four to ten guineas and a useful Electro-Machine supplied for two guineas.

Electricity imparted by means of an Electric Apparatus will permeate and reach the parts that no medical rubber can touch. But in many cases I believe the human hand to be the best electric machine. By judicious rubbing you not only generate electricity, but impart vitality, inasmuch as that a good rubbing will do more good than Doctor or Mechanist to a weak limb and spine. I often tell my patients if they would rub and exercise their limbs they would not require mechanical treatment. By stating this I do not under value electrical treatment, as it has done marvels in restoring sufferers to health.

EIGHTH SERIES.

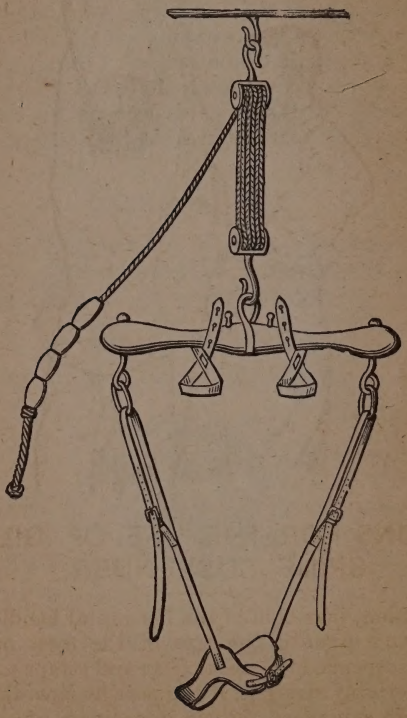
MECHANICAL EXERCISES, COUCHES, CHAIRS, &c.

GILLINGHAM'S SPINE SUSPENDER

FOR THE USE OF

the Surgeon, the Mechanist, or the Patient, for applying Sayre's Plaster Paris Bandages, or Cocking's Porous Plaster Splint, or for Self Suspension.

PATIENTS AND CHILDREN SHOULD NOT PLAY WITH THIS SUSPENDER.



PATIENTS SHOULD GET NEW CORD WHEN MUCH WORN, TO AVOID BREAKAGE.

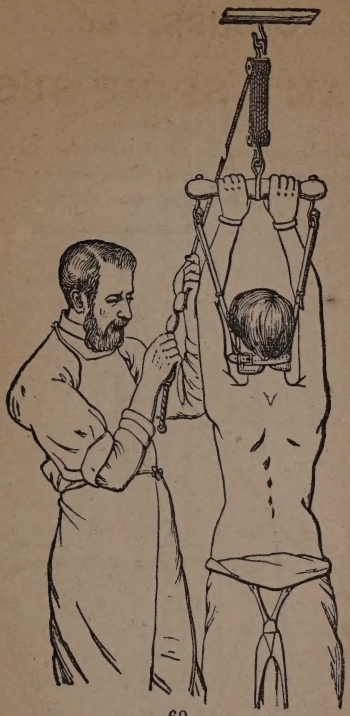
66

The advantages of Gillingham's plan of Suspension.

When a patient swings by his hands from a horizontal bar, the spine and muscles are extended naturally, the chest is expanded, and the shoulders are symmetrical. Should the curvature be compensatory and not of spinal origin, it will be detected instantly in the shortening of one leg.

By securing the pulley-cord, the patient can suspend himself by the handle, or by leaving hold of the handle or cross-bar and drawing the

pulley-cord, he can practice self-suspension by the hands and neck. Thus the apparatus, at a nominal cost, may be purchased by the patient for daily use, or used by the surgeon or mechanist while applying the bandage.—Patients should practice suspension daily.



69

INSTRUCTIONS FOR THE USE OF GILLINGHAM'S SPINE SUSPENDER.

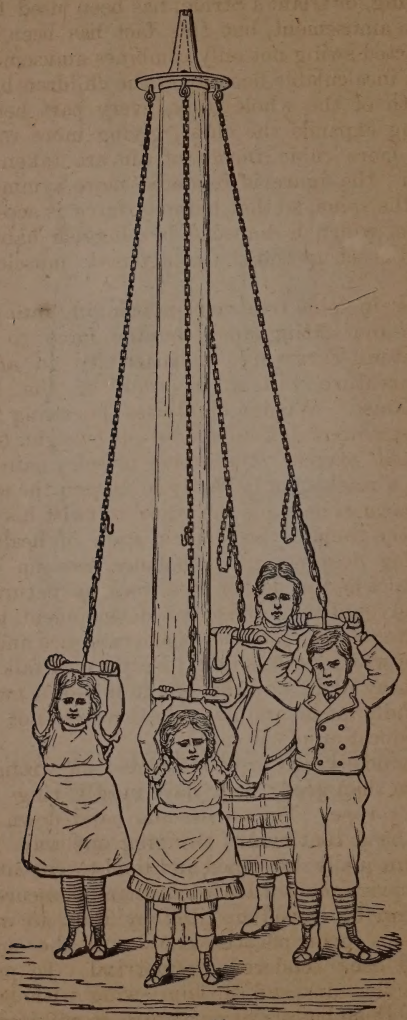
First.—The patient lays hold of the horizontal handle with his hands he is then drawn up until the tips of the toes touch the ground. Second.—While suspended the neck-collar and straps are adjusted until the spine is comfortably straight, if the patient is weakly you fit on the wristlets, but there is no need of them in ordinary cases, he being better without them. Third. - Test your patient and adjust everything before you begin ; the pulley is held and the suspender controlled by a second person while applying the bandage. Patients must not be allowed to swing off the ground, and in cases of Angular Curvature or Pott's Disease, a firm grip of the ground with the foot should be allowed, the heels slightly lifted to avoid unnecessary strain.

The horizontal handle was suggested to J. G. by his own children at the round swing (or giant's stride)—See over.

PRICE OF SUSPENDER, COMPLETE, TWO GUINEAS.

GILLINGHAM'S ROUND SWING.

Important to Schools and Families.



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Mr. Gillingham's Children at the Swing, engraved from photograph.

The best preventative and cure for slight cases of lateral curvature, and for round shoulders, is a daily and judicious use of the round swing constructed on physiological principles —See over

THE ROUND SWING.

The round Swing, or Giant's Stride, has been used for many years in our Schools as an amusement, but this fact has been lost sight of, that a rightly-constructed swing not only combines amusement and exercise, but it confers an incalculable boon upon the children by developing the muscular strength of the whole body, every part being brought into play. This swing expands the chest, giving more room for the vital organs to play; more cubic inches of air are taken in, producing a better circulation; the figure is rendered more symmetrical; pressure is relieved from the spine, so that nervous force is accelerated; for the want of this force, which is impeded by sluggish habits and pressure, muscular traction is set up and the antagonistic muscles pull the spine into curvature.

The great secret in spine treatment is bringing into play the muscles that are inactive and setting up a counter force to the contraction. Entire rest in lateral curvature, or inactivity in an instrument, is injurious, for curvature will go in spite of the best orthopœdic Surgeon or Mechanist. When a child uses the swing rightly directed, the will—the most powerful of all agents—is brought to play upon the muscles. Without exercise the active muscles gain power over the inactive, and like a machice only partly in motion the working is on one side, or like the carman he skids the wheel to twist his car into a curve. The muscles of the human body in a state of healthy activity are neutral; anything destroying the balance sets up contraction and curvature. Then let nature do her own work by natural means and it is only as we study judicious muscular development that we shall be saved from becoming a decrepid and degenerate race and from the many ills and diseases to which flesh is heir. People may talk about their vile bodies as long as they like; nevertheless it is God's master-piece, fearfully and wonderfully made, and its education (and not its abuse) is as necessary as the education of the mind.

Most of the round swings are constructed on wrong principles, and thus do more harm than good; they have mostly rings or loops at the end of the chain or rope. Thus, with one hand down to the hip, the other above, the head continually swinging one way, the muscles are unnaturally and unequally developed and tend to curvature.

J. Gillingham's principle is a horizontal handle, secured to the end of a chain, which can be looped up link by link, to meet the height required; upon this principle the muscles of the spine are equally extended, and the back rendered symmetrical. To prove its effects, strip your child to the hips and let him swing with both hands from the top of a door. If he has slight curvature, it will instantly disappear while so extended. Prove it for yourselves.

Now the horizonal bar—simply hanging with the hands—is so monotonous that children get tired of it, there being but little exercise, simply extension. But with the round swing there is not only extension but exercise and pleasure, and the children will work at it constantly,

and it is this constantly pegging away that will cure, slowly and imperceptibly it may be, but nevertheless surely.

Further, when the patient has lateral curvature, two handles may be used, and one looped a few inches above the other, that more tension may be brought on the muscles requiring it.

This swing runs upon a steel centre, so that one may fly round the swing as easily and freely as if there were more to join.

CAUTIONS.

Children should not be swung up, but allowed to work themselves up. In cases of angular curvature, where there is absorption of the inner surface of the vertebræ, the swing should not be used; the felt or plaster jacket, or spine support, with rest on the face and hands, and gentle exercise, is best. In cases of concussion of the spine, the swing should not be used, but entire rest on the back upon a mattress. In cases of effusion of the spine the swing should not be used; electricity, given by a skilful practitioner, is the best thing. Where there is any spinal irritation the swing should not be used.

Children with lateral curvature may use it, and children with round shoulders; children in ordinary health will be sure to use it and delight in the exercise.

J. Gillingham can supply these swings, constructed on his own principles (without pole) to Board schools, private schools, families, etc., including chains, handles, spindle, head table with swivel hooks and ring for top of pole—for four children, at 36s.; for six persons, two guineas.

Instructions.—Pole, 20 feet long; 5 feet in ground; to be secured well at bottom with cross pieces that it may not circumscribe; spindle to allow table to clear top of pole one inch. A swing for the nursery can be had by fixing the table to a bolt spindle through a beam. Any further information given free of charge.

Diameter of Pole about 6 or 7 inches at bottom, 5 at top.

National School, Alnwick, Northumberland, August 25th, 1880.

Mr. J. Gillingham, Dear Sir,—A year ago I got one of your Giant's Strides, and am quite pleased with it. Will you please send me *another with 6 chains for two guineas* as per advertisement. Also please send bill, and I will send you post office order on receipt of goods. Hoping to receive it as good as the other one.

I am, dear Sir, yours faithfully,

T. THOMPSON, Head Master.

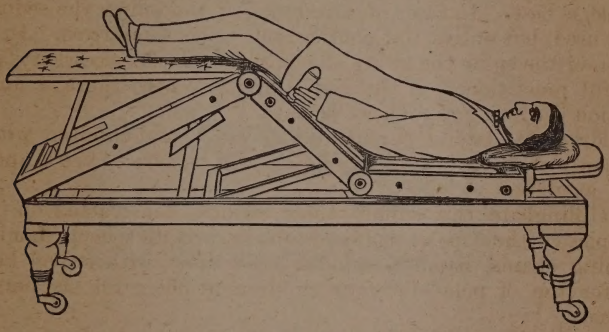
By Her Majesty's Royal Letters Patent.

GILLINGHAM'S COMBINED COUCH,

"THE UNIVERSAL."

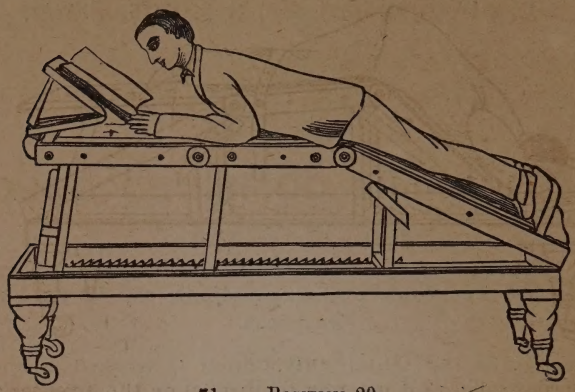
It makes 40 Positions, 500 Graduations, can be used for 50 Purposes.

The Mechanism by which this Couch is worked is analagous to the seven notes and octaves in music—or the seven points in architecture—giving many changes.

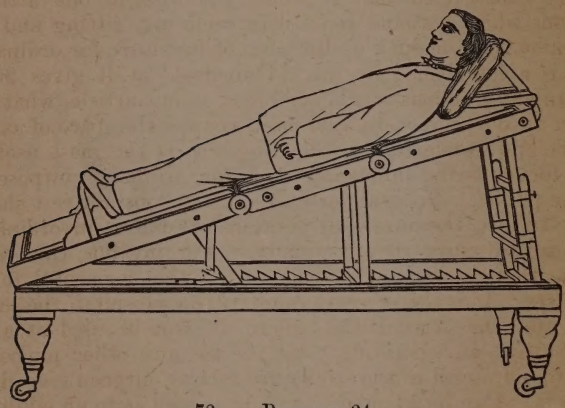


69. Position 11.

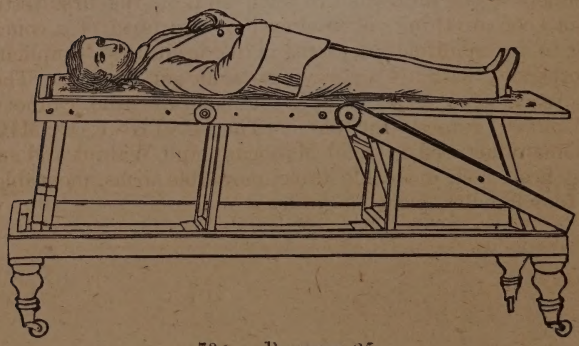
70. Position 14.



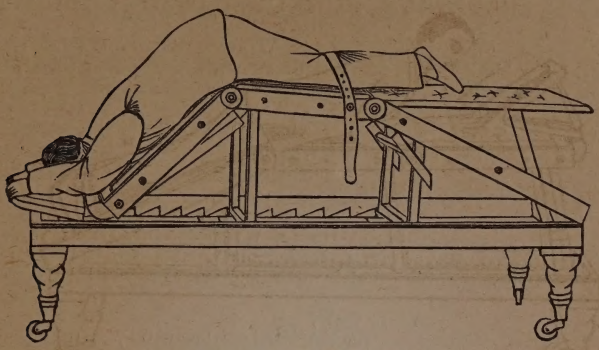
71. Position 20.



72. Position 24.



73. Position 25.



74. Position 27.

The numerous sufferers constantly coming before the inventor, in the course of his practice as a Surgical Mechanist, suggested the importance of a Couch so constructed that it would comprise, in one article, the many positions which patients require in reclining, sitting and lying; yet, at the same time, make a useful piece of furniture for ordinary use. This object is accomplished by the "Universal," as it gives 20 more positions than any previous couch, combines, in one article, what it took six or seven to do previously, and only occupies the space of one.

This simple and wonderful *multum in parvo* is the most useful and convenient for suffering humanity and for ordinary purposes, ever offered to the public. No aged person requiring constant rest should be without it. In fact, the numerous positions of comfort in ordinary use make it a great luxury in any family. For invalids, this couch is invaluable, as they can get any position of rest that is needful for their individual cases. It is also of great value in the Hospital, the Asylum, the Camp, and the Ambulance, where it can be used as a bed, a stretcher, a chair, an operating table, or for any other purpose. It will also be found useful in the studio, or in the surgeon's or dentist's receiving room. Can be adapted to a child as well as to an adult. The couch admits of universal application. It has been seen by many of the leading members of the profession in town and, on the first testimony, there has not been anything yet produced in the form of a couch that will equal it in its manifold positions, in its usefulness, simplicity, and value. Prospectus, with 34 engravings, sent out with it. They are within the reach of a large number of sufferers who cannot afford to give 30 or 60 guineas for one. The PATENT COMBINED COUCH is manufactured in solid Mahogany and Walnut and supplied with folding head rest, moveable table, moveable arms, moveable foot-board, and four handles, price 15 guineas.

TESTIMONIALS FOR COMBINED COUCH.

82, Wimpole Street, October 1st, 1872.

The Patent Combined Couch, invented by Mr. J. Gillingham, of Chard, is a most valuable and useful invention, and deserves every recommendation.

HENRY SMITH, F.R.C.S.
King's College Hospital.
BARNARD HOLT, F.R.C.S.
Senior Surgeon to Westminster Hospital.

14, Savill Road, October 11th, 1872.

Bleak House, Wiveliscombe, October 3rd, 1872.

Dear Sir,—I have great pleasure in stating the Combined Couch I purchased of you is most essential to the comfort of invalids, and surpasses any I have seen of the kind.

Yours truly,
EMMANUEL BOWDAGE, M.R.C.S., L.A.G.

LONDON INTERNATIONAL EXHIBITION, 1873.

OPINIONS OF THE PRESS.

Reports on Surgical Appliances, London International Exhibition, 1873.—"One of the most interesting objects in this department of the Exhibition is the Universal Couch, invented by Mr. Gillingham, of Chard, whose ingenuity in other departments of surgical mechanism has long been recognised by leading orthopœdists. Prior to this invention some half-a-dozen apparatus were required to do so much. Now, all this is combined in the 'Universal Couch,' which, therefore, well deserves the name."—*Medical Press and Circular*, July 16th.

Medico-Chirurgical Society Conversazione, Devon and Exeter Hospital, May 11th, 1874.—"A case of admirably contrived Artificial Limbs combining the utmost degree of comfort with an elegant appearance, attracted much attention from the medical gentlemen present. These are the works of Mr. J. Gillingham, self-taught mechanical genius of Chard. The masterpiece of this gentleman's productions is his Invalid Couch, most fitly termed 'The Universal.'"—*The Exeter and Plymouth Gazette.*

Bath and West of England Society, Dorchester Meeting, 1872.—"Mr. J. Gillingham has recently brought out another invention, his Patent Combined Couch. This is an astonishing production and cannot fail to prove a great boon to invalids, whilst at the same time it makes a most comfortable lounge and a handsome piece of furniture."—*The Dorset County Chronicle.*

Bath and West of England Society, Taunton Meeting, June 6th, 1870.—Arts Manufactures.—"Nothing in this saloon, various and valuable as was everything that had yet appeared, would rival, as evidence of extraordinary genius and perseverance, the contents of Mr. J. Gillingham's case, of Chard. This gentleman, yet a young man, and originally a disciple of St. Crispin, has applied himself to the repair of the human understanding to an extent seldom, if ever, before achieved by any individual starting from his point of life. He is the inventor of the 'Scapula Arm' and 'Dermatopchera Leg,' manufacturer of artificial limbs and surgico-mechanical appliances, including instruments for disease of the spine and hip, club-foot, fractures, and ruptures, and artificial eyes. Indeed, only give him any portion of the human frame that has life in it and he will add all the rest. You are not left in liberty to doubt; there they all are, the substantial limbs before you; and it needs no assistance from other people's eyes to discover what skill and beautiful workmanship in steel, wood, and other material has been bestowed in their construction."—*Western Daily Times.*

Opinions of the Press (continued).

"In the Arts Department, Mr. J. Gillingham, of Chard, the well-known surgical mechanist, exhibits a case of his unrivalled surgical appliances and artificial limbs, which has been an object of attraction to thousands of persons, who have audibly given expression to their admiration of the beauty of the workmanship, as well as to their astonishment at the wonderful skill displayed in the manufacture of the various arms, hands, legs, &c."—*Western Gazette and Flying Post.*

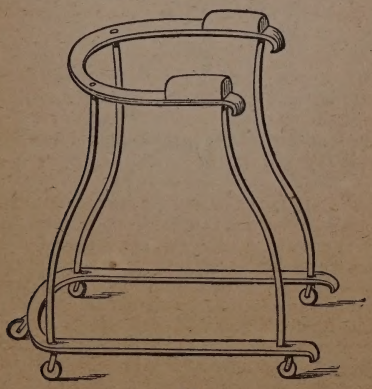
Dorchester Meeting, June 6th, 1872.—Arts Manufactures.—"The Combined Couch, invented by Mr. Gillingham, will be found of the utmost service to invalids and an admirable lounge for ordinary use. There seems no limit to the contrivances invented by Mr. Gillingham to ease human suffering."—*The Western Times.*

"Mr. Gillingham's Couch is a most delicious rest for those in health and in it the *dolce far niente* can in the utmost perfection be enjoyed."—*Dorset County Express.*

Medico-Chirurgical Society Conversazione, Devon and Exeter Hospital, May 11th, 1874.—"The largest display in the room was that of Mr. J. Gillingham, Surgical Mechanist, of Chard. There were no less than 26 specimens of skill in the construction of artificial legs, arms, hands, eyes, &c., including his Patent Couch. As we said of him years ago, only give him any portion of the human frame that has life in it, he will add all the rest."—*The Western Times.*

International Exhibition, 1874.—Mr. Gillingham shows some interesting specimens of artificial legs and arms made of leather, and if there is "nothing like leather" these may surpass Nature's own apparatus.—*The Chemist and Druggist*, April 15th, 1873.

GO-CAR.



75

The above is a useful car for weakly children, or can be used in cases of infantile paralysis when just learning to walk in mechanism or artificial limbs.

GILLINGHAM'S

IMPROVED SPINE CHAIR,

FOR

ROUND SHOULDERS, CONTRACTED CHESTS, AND WEAK SPINES,

THE BEST PREVENTATIVE TO SPINAL CURVATURE.

Children generally give way to stooping habits, this leads to round shoulders and contracted chest. Not unfrequently one shoulder is more prominent than the other; this developes unconsciously from a habit of resting on one leg, or sitting or leaning on one side. The prominent shoulder is the first sign of a disposition to lateral curvature, as illustrated in engravings 30 and 31 on spine affection. When sitting in an ordinary chair (as illustrated in engraving 76) the tendency with growing and weakly persons is to lean forward and sink on the hips, especially after exercise or walking, when the muscles are spent, and the wills fails to keep the spine continuously erect.

76

77

The Spine Chair is invented for a special purpose, and prevents this stooping, and gives the needed help to growing and weakly persons. The chair (engraving 77) is set at an angle between the vertical and horizontal lines, thus affording perfect rest. Its plain, hard surface presses the shoulders in, opens and expands the chest, thus giving more breathing room for the lungs, and more play for the organs of the chest. One padded is objected to (for diseased spines excepted), so that the prominent round shoulder shall not bed in the soft surface. Arms are objected to, so that the shoulders shall not be forced up. (The Hammock chair is objected to—that is with back and seat extended in one piece of carpet or sacking, though used temporarily as a seat. It should be avoided by growing children with weak spines, as it rounds the shoulder and the whole spine is rounded posteriorally out of its symmetrical lines).

The Spine Chair was invented by J. Gillingham for his patients 17 years ago, when it was reviewed and illustrated by the leading journals, and pronounced to be the simplest and most effective chair for meeting the needs of growing families. It has been recently improved (made to fold) and is more portable for travelling, schools, &c.

The chair forms a luxurious rest for general use; for children it has a great advantage over the straight or inclined purgatory board, with hole for the head, inasmuch as it accomplishes all that is required for the spine, shoulders, and head, yet at the same time allows the user to sit, rest at ease, and occupy the mind with reading or light needlework. No family should be without it

See engraving on the formation of the spine in lateral curvature and the rotation of the vertebræ, as twisted by the contracting muscles. This deformity is on the increase; some weak frames have a disposition to curvature, but in those where there is no disposition it may be

imperceptibly, yet gradually, brought on by loose habits—by not sitting or lying in the best attitude after play, exercise, or work; so that the exhausted and relaxed muscles may gain their natural tension in a state of rest. Example—A child tired and exhausted by play comes in, lies or sits in any attitude, careless; the muscles, in taking advantage of the rest, do not regain their neutralised tension, hence a growing deformity; in a state of health all the muscles of the body are in a state of neutrality or rest. Anything that destroys the balance leads to mischief.

Gillingham's Improved Spine Chair is manufactured in three sizes, in stained and polished deal and solid polished mahogany. No. 1 size, 30in. back, for children up to ten and eleven years of age, 17s. 6d. No. 2, 33in. back, suited to girls, youths, or adults, 18s. 6d. No. 3, 37in. back, suited for tall persons and extra long spines, 19s. 6d. In polished mahogany—No. 1, 24s. 6d.; No. 2, 26s. 6d.; No. 3, 27s. 6d.

To be had only of the Inventor. All Orders must be accompanied with Cheque or P.O.O.

ARTIFICIAL TEETH.

We live in an artificial age—artificial legs, arms, hands, spines, ears, noses, eyes, and the not less essential teeth, the latter are more generally worn than any other. It is a privilege to be blessed with sound teeth, but when they are defective or deficient there is no greater boon than a good set of artificials, especially when the mouth has been manipulated by a good operator.

I was myself a martyr to toothache for years. On one of my visiting days at Taunton I called on Mr. A. Stringfellow, dentist, East Reach. I asked him if he would say what he could do for me. At a look at my teeth he said, to make satisfactory work you must have them all cleared out. This for the moment was a poser. After the day's business was over I paid him a second visit, and said I have decided the matter, and, sitting down in the operating chair, asked him to begin at once. Will you have gas? No. The operator set to work by first tucking the instrument up his sleeve—some are afraid of cold steel—you need not do that, the matter is decided. How many will you have out at first? Go on till I tell you to stop. The operator began in a business-like manner, and extracted nine. Now, said he, I shall stop. In a fortnight I paid a second visit, and as many more were extracted straight off, but one being left; ultimately that one shared the same fate as the rest. In due time the mouth was modelled and a new set supplied. At first they were trying—I could only keep them in at short intervals; but this gradually wore off. There are no springs, the fit and workmanship being perfect. They have now been in use four years, and, with an occasional rub up, they are as bright and beautiful as the first day they were fitted.

A lady seeing mine said she should like a similar set, but dreaded the thought of extraction, and wondered at my sitting to have so many drawn at once, One day Mr. Stringfellow called; I was present. Now is the time I said—don't think it over, but have it done at once. We prevailed on her to sit and have out seven (without gas or spray). In about an hour Mr. Stringfellow came back. Now I said you have decided on this matter, and if you feel equal to it, you had better sit again and not put it off a fortnight. Six more will complete the work. This she did and six more were extracted. She marvelled at my having out nine, but she herself had out thirteen. See what may be done by a little tact, firmness and encouragement. I need hardly say this patient's case was equally successful. During the extractions in both cases there was not a single slip of the forceps or breakage, neither was their any distortion of the mouth and gums. Therefore as an operator and mechanician I can confidently recommend Mr. Stringfellow. As I am now publishing my new book I felt he was entitled to a place in it. I have inserted this unsolicited and without his knowledge.

EXTRACTION OF HORSE-BEAN FROM THE EAR.

Manufacturers now-a-day are at a loss to know what to do to sell their wares, they write on all kinds of subjects sometimes even quoting from the poets. Therefore, I do not see why, to add to the interest of my

new book, I should not relate a curious incident in my own line of business.

Not long since there were a series of Ambulance Lectures delivered in this town (Chard). One evening was devoted to injuries of the eyes, ears and senses. They were delivered by a professional gentleman from St. John's Ambulance Association. During the lecture he said one of the most difficult things to deal with was substances in the ear, and after giving the effects of insects, stones, buttons, peas, &c., he finished up by saying the most difficult thing to extract was a horse-bean. There were some cases on record, but in none had the beans been extracted. It had been considered impossible to do so without serious injury. At a pause in the lecture I stood up and said, pray excuse me Mr. Lecturer, I have performed that operation myself at Chard. Later on I was asked to explain how, and by what means. A youth named H—— was induced to play the conjuring trick of putting a bean in the ear and taking it from the mouth. After putting in the bean he could not get it out, and the more his friends tried to extract it the further they forced it into the head. The bean was there some considerable time, until at last medical aid was sought, many things were tried, but to no purpose, and what with probing and moisture to lubricate the ear it became painful, the bean being more firmly fixed than ever. The bean began to swell and was completely capsuled in. Further medical advice was called in, but to no purpose. The bean was so fixed that it was impossible to place an instrument or a snare of a fine loop of wire round. I was asked to come and see the youth, but declined as I considered it a want of good taste to meddle with any gentlemen's patient without his knowledge, but they came a second time and prevailed upon me. As I knew the youth and the mother, I thought there would be no harm in seeing him. On entering the room I saw a number of surgical instruments lying on the table. I extended the aperture of the ear and looked in. Just the eye of the bean being visible. I no sooner discovered the bean, than I saw instantly how to extract it. The mother entreated me to do so. At first I declined as the law will not allow of an operation being performed except by a medical man under a diploma. Would I try, they would say nothing about it if I failed. I went to a watchmaker near and secured a long thin drill about the size of a fine stocking needle. I then fixed the boy's head so that the light would fall on the bean, with a request that he was not to move, but when the drill was nearly through, before it touched the drum of the ear he would feel it; then he was to speak. The process of drilling was very slow, any force would have resulted in serious mischief. After a few minutes he cried out that he felt the drill coming, it was against the rind of the bean, but not through. A few slight turns without pressure and the drill was taken out. The boy could hear distinctly through the pin hole. (It seemed wonderful that distinct sounds could be heard through such a small aperture). I now drilled several holes round the central one. I then broke them one into the other, and with a small scoop began to hollow out the bean, when sufficiently hollowed I pushed the ends of the forceps up between the membrane and the bean and doubled or broke it in. I then placed one end of the forceps inside the bean and the other out and extracted it without pain or injury.

At my next visit to London I explained my mode of extracting the bean to B. Holt, Esq., F.R.C.S., Senior Surgeon to Westminster Hospital. On my second visit, he said, I explained your mode of extracting the bean to Professor —— at the College of Surgeons. Let me tell you, he considered it exceedingly skilful. So that I may take to myself the credit of adding something to operative surgery.

THE BLIND TO SEE!

(IN PROSPECTIVE.)

Original Inventions first come by intuition, then they have to be worked out and matured. The possibility of the blind seeing was suggested to me by the experiences and the experiments I made on a sufferer—Mrs. Croad, of 1, Collingwood Road, Redland, Bristol—late patient of Dr. Maclean, Swindon, and at present a patient of Dr. Davey and Dr. Andrews, Clifton. Mrs. C., at the time of my first visit, was blind, deaf, dumb, jaw-locked and paralysed in both her legs and her left arm. Her mode of sustenance was by suction, of communication by writing on a slate, and of receiving a message by writing with the finger on her face. By my visits and experiments* with a watch, and from her experience of hearing through her right foot, I discovered the possibility of hearing with the "Audiphone," invented by Mr. Rhodes, of Chicago, from any set of nerves in the body. She now hears with the "Audiphone" nicely and speaks and knits with a simple appliance. The sister-nerves of the body become the servants of the internal auditory nerve, apart from the external ear. Mrs. C. has also the power of describing pictures, photographs and colours when blindfolded in a dark room; she was thus tested, though blind, that there might be no chance of imposition. (See test by Dr. Davey, of Clifton, in a lecture on the "Transference of the Special Senses." *) Mrs. C. says that when the prints, photographs, or colours are touched, they come to her like a flash of light.

† Now, in my experiments with an electric battery, previous to my knowing Mrs. C., I have placed one pole on the medium-nerve of the arm, and the other on the medium-nerve of the forehead, and streams of light cross the vision (with better effect when blindfolded in a dark room). Why is this? Because the optic nerve is the medium for light, just as the auditory nerve is the medium for sound: each nerve of the

*Laura Bridgman, the blind, deaf and dumb lady, of Boston (blind from infancy), hears through her right foot.

See "Service of Suffering," compiled by J. G. Westlake. Published by W. Mack, 4, Paternoster Row.

* "Transference of Special Senses," by J. G. Davey, M.D. Published by Balliere & Co., King William Street, Strand.

† In testing Mrs. Croad with the electric battery and placing one pole on the medium-nerve of the arm, and the other pole on the medium-nerve of the forehead, she said that she saw a bright light, like the sun bursting from behind a cloud.

senses has its particular function ; now, there is no light when the poles are placed elsewhere, it is only when the sister-nerves becomes connected with the optic nerve. Now, my belief is that it will prove to be possible for the blind to see when telephotography is developed—that is the power of transmitting scenes by wire, by means of an electrical and optical instrument combined.

The nervous system being the most perfect electrical machine, scenes may be transmitted through the optic nerve to the mind when the natural visual organ has been destroyed, if the optic nerve be perfect I laid these facts before an electrician at the Electrical Exhibition (Crystal Palace), to which he replied, "Where did you get that idea?" I said it was original and that it came to me intuitively. "Let me tell you," he said, "you are on a grand track, I have heard of no idea so advanced ; but let me tell you that Reichenbach followed on the same path twenty years ago and was harshly treated by his brother scientists." I was then shown his work, and extracts were read to me in which it was stated that persons blindfolded, under certain magnetic conditions, could see what others could not ; they could see streams of light issuing from human hands and various bodies—metal wood, &c., which were set forth in various lithographed drawings. This was confirmatory of what I had previously written in a series of articles on Mrs. Croad's case, and those articles were written without any knowledge of these facts.

The time is not far distant when science will devise means by which the blind may see without the natural visual organ. When Dr. Richardson, some years ago, stated that the time was coming when men would walk the bed of the ocean as on land, he was laughed at ; not long after Fleuss, the diver, invented a means whereby he could get out of a boat and walk the bed of the ocean for hours, without air pump, or our present diving apparatus—there is nothing impossible.

This article was lately read over to Mr. Alsepti (the well-known Professor of Music), Exeter, who has been blind for forty-five years, having lost his sight when only three months old ; Stringfellow's pocket battery was tried upon him with this result : "I see glorious light, such as I have never seen before." He also stated that the light with dark objects continued to flash before his vision for some time after the battery was supplied.

At the time I was interested in the above case, I was writing a series of articles on Psychology and the Lost Senses. These articles were read by a well-known Professor in London, Dr. G. H. On one of my visits to him, he said I have a special commission for you from a gentleman. "If you can perfect the apparatus to enable the blind to see, he is prepared to give you £10,000, it is a genuine offer and worth trying. To this offer I could only make this reply : "I am only the forerunner and have just struck the key-note by way of opening up its possibilities. To my mind it is more than probable, as science advances ; but it must be left for others to work out and perfect. An intuitive mind can foresee the end, but not the exact process by which it is to be arrived at.

About twelve months after I cut the following from the "Christian Age":—

Good News for the Blind.—It is announced that Dr. Emile Martin, of Paris, has invented an apparatus with which it will be possible to enable the blind to see. The mechanism, which is of platinum, can, it is said, be affixed without pain, so as to excite in the optic nerve the sensation of light and the power of vision. So high is the opinion, the Paris Academy of Medicine has formed, *primâ facie*, of Dr. Martin's invention, that a committee of its members are reported to be now engaged in practically testing its merits. The result of their examination is awaited with the deepest interest.

I then forwarded the foregoing article, without the last note, to the Secretary of the Paris Academy of Medicine. I received a reply that my communication had been forwarded to Dr. Emile Martin. What the results of further progress in this direction may be I cannot say, but light is dawning.

My imagination led me so far in the matter that I drew a sketch of a blind subject with a battery in a side pocket and an optical and electric arrangement resting on the medium-nerve of the forehead (like a field glass looking at the surrounding scenery).

This idea was caught up and engraved as a frontispiece on an American (Chicago) monthly, "The Deaf Man's Friend," March, 1883.

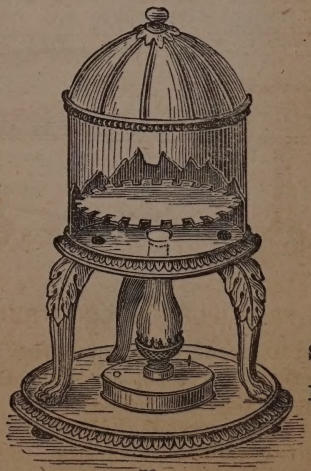
Science will yet perfect an instrument and the tedious process of teaching the blind will be superseded. This assertion is not more erroneous than Galvin's, who was called the "Frog's Dancing Master," yet his discovery now girdles the world. Our cities are become like a spider's webb and its many wires from one centre make us as if present in all parts of the world almost at one and the same moment of time, so that in speech and thought, time, space and matter, are, in a sense, annihilated.

MISCELLANEOUS INVENTIONS.

By Her Majesty's Royal Letters Patent.

Bronze Medal awarded at the Manchester Exhibition, 1880—the Highest Award for Gas Heating Apparatus.

GILLINGHAM'S
PATENT
RADIATING HEAT
GENERATOR,
FOR ACCUMULATING
AND UTILISING
HEAT,
PORTABLE,
CLEAN,
SIMPLE,
EFFICIENT.



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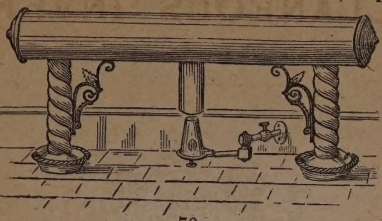
FOR
CONSERVATORIES,
CHURCHES,
CHAPELS, SHOPS,
OFFICES,
LIBRARIES,
WAREHOUSES,
&c., &c.
FOR MOULDING
SURGICAL SPLINTS,
HEATING PATIENTS'
BEDROOMS,
&c., &c.

Invented by J. Gillingham in contriving apparatus for moulding surgical splints &c.
Gillingham's Patent Radiator to be had of all Ironmongers.

AN UNSOLICITED TESTIMONIAL.

VICTORIA STREET CHAPEL, TAUNTON, September 14th, 1880.

SIR,—May I suggest to those trustees who are thinking about this matter in view of the approaching winter that they communicate with Mr. Gillingham, of Chard, Somerset. His apparatus, which is attracting much attention just now, is the most satisfactory thing for heating, small chapels especially, which I have met with, it is scientific, cheap, wholesome, simple, and clean. I write in the spirit of selfishness, inasmuch as Mr. Gillingham (may he have his reward) has invented a heating apparatus which does its work and *does not poison the preacher.*



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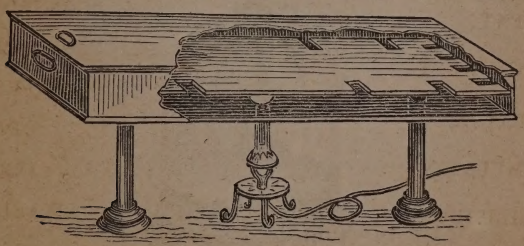
I am, Sir, yours,

T. H. LOMAS.

EXPLANATION.—No air is allowed to ascend into the receiver, except that which is heated by the oxygen during perfect combustion. The heat, having by an inevitable law ascended, is kept aloft by the pressure of the atmosphere, where it accumulates in cylinders or receivers, the capacity and diameter of which is suited to the power of the burners. As the heat increases in intensity mechanical action is set up and we get heat by vibration.

GILLINGHAM'S PATENT
HEAT RADIATING HOT DRESSER.



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THE PRINCIPLE OF CONSTRUCTION.

The heat is allowed to ascend from the burner into the first compartment through an aperture in the bottom of the Dresser, where it strikes upon an inner bottom or Radiator slotted round the edge; the heat is scattered over the Radiator, ascends through the slots into the second compartment and gives uniformity of heat to the top of the dresser. When it has ascended it will not come down but will heat the top of the Dresser to any temperature, according to the power of the burner (or number of burners used in the cases of Long Dressers). The product of combustion, being heavier than the heated air, falls down the legs of the standards or out of the same aperture through which the heat is supplied.

An ordinary Duplex Oil Lamp or Argand Gas burner is sufficient for general purposes, and will heat an ordinary sized room. Size of Dresser for burners (as in engraving), 3 feet long and 1 foot wide, and about 7 inches deep. Can be made any size or of any metal.

For Photographers.—It will keep your dark room at the desired temperature for chemicals, dry plates, sensitised paper, warm dishes of water for toning purposes (and heat a vessel with hot water arrangement, if necessary). The lamp and burner is provided with metal chimney with aperture for ruby or coloured glass.

For Moulders.—The wax or plastic material may be kneaded like dough on the dresser and the desired temperature constantly kept up as required.

For Chemists and Botanists.—For drying herbs, flowers, and other purposes.

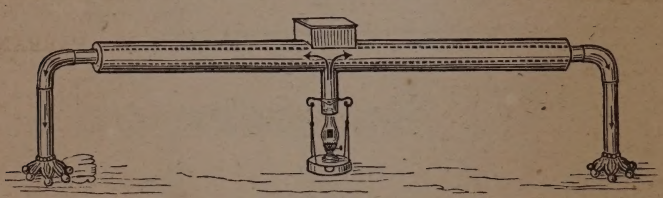
For Cabinet Makers.—For veneering, heating wood surfaces to be glued or cemented, &c.

For Artists, &c.—For Artificial Workers of every description.

For Florists.—For forcing plants and for window gardening.

Price of Hot Dresser in galvanized iron, 3 feet long by 1 foot wide ..	£2	2s.	0d.
Duplex metal Lamp Chimney, with coloured glass aperture for Photographers	£0	11s.	6d.
Argand Gas Burners on Stand, with metal chimney ditto	£0	8s.	6d.

GILLINGHAM'S PATENT RADIATOR WITH HOT-WATER JACKET.



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This Radiator is for softening the temperature and giving uniformity of heat throughout the cylinder heated by oil or gas (from the centre or from one end). It is made on the principle of the Cornish boiler—a tube within a tube. This Radiator, made in several designs, is boiler and furnace in one, so that the water jacket is heated the whole length of the tube. The cistern fixed on the centre (or end) serves as the supply, the over-flow, and the vapour trough. Gillingham's Patent comprises eighteen other arrangements.

Testimonials.

Ilminster, August, 1881.

Sir,—I have now proved your Heat Radiator two severe winters and I am more satisfied than ever in stating that (if the lamps are rightly managed) it is the most useful invention for small conservatories. I have lost no plants. The house has been well supplied with flowers, taken from the conservatory through the severe weather. The fruit trees under the influence of the lamps and Radiators have kept remarkably healthy

and are abundantly supplied with fruit; in fact I am a month earlier this year. I attribute it to the low uniform temperature during winter.

I am, yours respectfully,
J. NEWBERRY,
Gardener to J. W. Shepherd, Esq.

6, NEWTON TERRACE, GLASGOW.

Gas Radiator is doing very well, it answers its purpose and is much admired by my patients.

From DR. CASSELS.

FLAN STREET, LISKEARD, January 8th, 1880.

I was on the point of writing to you to express my great satisfaction with your Heat Generator, when I received your post-card. I cannot speak too highly of it for greenhouse heating. It is simply perfect and after the experience I had at the beginning of the winter with stoves, I must say your Heat Generator is by far the best. The plants always seem to me to dislike the heat of the stoves and they have much improved since I had the Generator.

Believe me, yours truly,
CHARLES A. CLIFTON.

AYLWOOD, TORQUAY, September 13th, 1881.

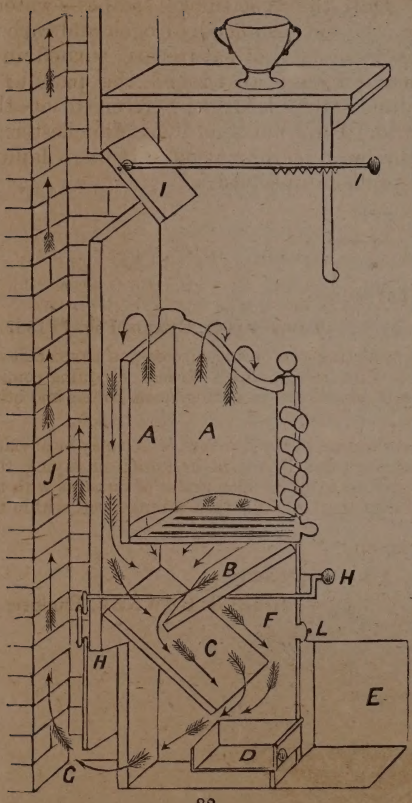
I have great pleasure in testifying to the excellence of your Heat Generator for greenhouses, &c., being simple in construction, economical, and most effective. When my new greenhouse is completed, I shall get you to supply me with a somewhat larger one than the last.

Yours truly,
W. FARRANT.

GILLINGHAM'S

PATENT OPEN FIRE GRATE,

For consuming its own smoke, and preventing unnecessary waste of heat up the chimney.



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This grate was invented at the time of the Smoke Abatement Exhibition, London, 1881-2, but not completed in time to exhibit. In all the smoke consuming grates at this exhibition, the exit into the chimney was immediately from under the bottom or sides of the grate. There was no dip below the fire bars to store the heat and separate it from the product, and no suction chamber at a depth below the bottom of the grate to induce the direct down current: without this there must be great waste of heat up the chimney, and less perfect combustion and analysis.

The engraving is a side section, showing the action of the grate. J is a suction chamber which extends 18 inches or two feet below the bottom of the grate. The fire is lit in the ordinary way with open register, and when the air in chamber J is heated it ascends into the main flue. The register is then closed, also the store chamber, F, is rendered air-tight. Nature abhors a vacuum, and there is no way of filling the exhaust chamber, J, but through the fire. The air rushes down through fire to fill vacuum, thus supplying needed oxygen to overcome the fuel, and act as nature's bellows (without a bellows or a door to induce a current). Further, it is only air that is exhausted in the chamber, J, and it is only air that is required to fill it. Thus, as the disengaged nitrogen is rushing down to fill the exhausted space, the heat, being so much lighter than the current, stops in the

bars and store chamber, separation of heat from product takes place—the heat increases to such an intensity that cinders burn with rapidity and clink as in a furnace. The hottest place is below the bottom of the grate, where it should be. Round the back and sides of the grate is a fire brick waistcoat, A, with annular space leading into store chamber beneath, the surface smoke and gases are sucked down, and in rolling over the red hot plates are consumed, also the fire brick plate, B, under bottom nips the gas and smoke in passing and consumes them, E is a grated chamber supplying the place of hearth stone, for letting up radiant heat. By regulating the damper, and opening the register, it can be turned into an ordinary fire, or slow combustion grate; when in action with live fuel, the flames will go down like a dart 18 inches below the bottom of the grate. Only the true smoke escapes—watery vapour and carbonic acid gas, &c., the unconsumed hydrogen and carbon which poison our cities and blacken the face of nature are turned into light and heat and stored for use. I have abandoned the patent: I could not stand the expense, and after treatment received at the exhibition (see trials of an inventor) I did not send it to Manchester.

This Exhibition represented the brain of the nation. It was a failure in its management, and left the problem unsolved.

TESTIMONIAL.

TOWN MILLS, CHARD, Feb. 7, 1882.

SIR,—I have much pleasure in congratulating you on the success you have achieved in your Patent Improvement in open Fire Grates, which exceeds anything coming under my notice during nearly fifty years' experience in setting steam boilers and other furnaces.

The only difficulty I can see is the overheating of the fire bars, which may be obviated by substituting hollow bars for air passages, when I have no hesitation in saying that the principle could be advantageously applied to either open grates or furnaces with the saving of 50 per cent. of heat and fuel over that of any other arrangement within my knowledge.

I am, Sir,

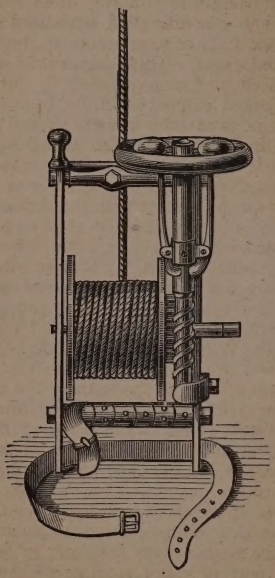
Yours respectfully,

JOSEPH HAWKER, Engineer.

GILLINGHAM'S PATENT FIRE ESCAPE,

"THE SPIDER."

An engraving in the *Illustrated News* of the burning of the great American Hotel, where so many lost their lives, induced the Inventor to work out this Escape.



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This small portable Escape is worked by worm and wheel and with governing motion. A reel 5in. by 3in. will hold 150 feet of copper coil of such strength that at a length of 100 feet it will bear the strain of three men. The centrifugal governing motion gives an adjustable speed to the machine, running the same speed with a boy or man. With ordinary pressure on the governing wheel the machine is brought to a stand at any point in the descent, when the machine may be locked and both hands liberated. The Escape is buckled round the waist and the spring hook at end of line secured to a bedstead or any secure place. In winding the coil it is thrown out of gear. The Escape can be used *vice versa*—secured from above and the spring hook caught in a belt secured round the waist. The mechanical arrangement will work

effectually without been touched, and when wound up is ready for the use of a second descent, but is really more adapted for individual use. I introduced it to the Captain of the Metropolitan Fire Brigade, who said it was more adapted for private use, as their men were trained to use ropes without these machines. It was then offered as a present to a fire escape maker on just paying the expense of patent. It was not accepted. So the patent was dropped, and it is now open for anyone to make. So much for inventions. The success of the Escape will be better shewn by the following report of experiments made to test its value :—

The announcement that on Saturday afternoon Mr. Gillingham would test the merits of his fire escape by venturing a descent from the tower of Chard Church, attracted a large crowd of spectators to the neighbourhood of the Church. The height of the tower is nearly 60 feet—a height sufficiently formidable, when realised from the top of the tower, to occasion the somewhat uncomfortable sensations of shrinking and giddiness which Mr. Gillingham confessed to have experienced at first and which, no doubt, were shared by some of the many onlookers. These sensations were soon dissipated as the descent was actually commenced and soon effected by Mr. Gillingham without any other hindrance than the arranged stoppages in the front of the clock, when a photograph was taken. The machine was then drawn up and soon returned with Mr. F. Woodland (a pupil of Mr. Gillingham's) who also pulled up at the clock for a similar purpose. A third descent was made by Mr. Gillingham's machinist, R. White, occupying only about 30 seconds. A projecting gable was used in each of these cases in order that the machine may escape contact with the abutments and other projections; but, to show that it was available in the absence of any such facility, White fixed the cable over the cock tower, securing the belt a little lower down his spine; he then came down, steering his course with his feet, at a rapid rate to the church roof, where he unbuckled his belt, ran along the roof, and in a few seconds again attached the machine for the rest of the journey, which he quickly and easily accomplished.

On Monday, 5 p.m., a still larger number assembled to witness a repetition of the experiment over a parapet of the Wilts and Dorset Bank, being the highest building in the town. The first descent was over the parapet from the attic window; the spring hook at the end of the cable was secured to the beam of the roof, an old carpet was then thrown over the coping and cornice to prevent its being injured by friction against the keen angles of the stone. In spite of the awkwardness of the place to get over, through the cornice projecting so far over the building, White quickly started, and after stopping to be photographed, comfortably reached the ground in a few seconds. The machine having being again drawn up, another journey was made from the top storey bedroom window, in the course of which an imaginary rescue was effected of a boy in the room immediately underneath; White entered the room and quickly buckling the boy to himself, soon reached the ground with ease and in safety, but not without some very perceptible fear on the part of many spectators—caused by the smallness of the coil on which both were thus suspended; this was only three-sixteenths of an inch, but it had before been proved equal to the weight of three men. The coil was manufactured especially for the purpose by Mr. Mewes, Midland Ropery, Birmingham. White then wound himself up to the first storey, but this, in the present somewhat incomplete condition of the machine, was a slow process. A descent was then made by Mr. Gillingham, who, in his rapid progress, freed his hands to show that a person who through faintness, or some other cause, may be powerless to use or even touch the machine, would yet be quite safe when once launched. The last trial was made by Mr. F. Woodland and with equal satisfaction. Mr. Gillingham, in reply to some who were wondering how the machine could be put into possession of anyone in danger from fire, intimates that this could be easily effected by attaching the line to a ball and driving it through the window of the room in which the person may be at the time. He further states that when complete the machine will be so constructed as to wind or to be wound up more effectually for the next descent and also to the end of the line can be attached a fly grapple, which on pitching will throw out claws that will seize firmly on the first thing near and thus make it possible for anyone to wind himself to the top

storey of a house, or the top of a fort as the case may be. Travellers frequenting high hotels are supposed to carry the small machine in their travelling trunk with them, hotel-keepers and warehousemen are supposed always to keep them suspended with the simple instructions for use. We congratulate Mr. Gillingham on his having thus far succeeded and fully satisfied the expectations he had previously raised.

At the Parish Church on Sunday morning, the vicar (the Rev. Preb. Buller) referred to Mr. Gillingham's latest invention. Taking for his text the words "Escape for thy life," Genesis xix., 17, the rev. gentleman, after referring to fire as the most valuable of servants, said it was also the most cruel and tyrannical of masters; few things were more terrible and few things appealed more powerfully to human sympathy than did a burning house, whilst few positions could be conceived more agonising than that of a human being in the upper stories of a house from which the ordinary means of egress had been cut off by fire. The natural instinct is to go to the window and there is an overpowering desire to reach the ground beneath; the fire is behind, and the yawning depth below. How many, as we well know, have taken the fatal leap rather than be food for the hungry flames. He would say that if any man can devise a safe and easy means of escape from such a position of peril and agony, he is a benefactor of the human race and that one of our townsmen was likely to have that honour was clearly demonstrated to us by the very remarkable experiments which took place from the old grey tower on the previous afternoon before so many spectators. With regard to this invention, he would only say—May God bless it for the preservation of many precious lives. The vicar then made an earnest appeal to his congregation making a practical application of the text, pointing out to them the means of escape from the wrath of God."

The public Press for years has constantly suggested various provisions and means of escape from fire, with little or no practical result. The Graphic of May 3rd, 1884, commenting on the loss of life by fire at the Old Bailey, suggests, as many contemporaries have done before, that a knotted rope with hook be kept under the bed, or better still, a rope ladder. Let me say that not one in five hundred would come down a knotted rope, or a rope ladder, unless he were a trained fireman, a sailor, or a gymnast, and not one female in a thousand would attempt it. As an experiment it is worth trying; get a few ropes and test it for a few feet and you will find yourself thoroughly beaten.

Gillingham's invention supplies a long-felt need, as the illustrations will prove and would be equally available as a means of escape from the top of St. Paul's as from a house.

RECREATIVE GAMES.

"LOFFEL."

Nothing is more conducive to health than a good field game, especially when it is made recreative and enjoyable. With a view to add a new feature, I have introduced the Loffel or Ladle and for which I applied for provisional protection, but did not carry out the patent, as I could get no house in the trade to take it up. Here is the difficulty in introducing a new thing. Manufacturers are afraid that it will interfere with the sale of games in practice. A report from the local press with illustrations will give a fair description of one of the many games to which the Loffel can be applied and of which there are seven modifications in the drawings of the specification.

Ladies and gentlemen can play at the lighter games and indoor ones may be developed with a little tact and planning.

Among the games was one introduced by Mr. Gillingham, which was entered into with great zest, and proved to be as enjoyable as it was novel. It was one of the phases of which Mr. Gillingham's new game of "Loffel," is possible on smooth lined ground, promises to be a great acquisition. It is necessary that a proper pitch should be provided, with lined triangle for tripo, and divisions similar to those of a tennis court. There are three round signals, fixed as wickets at the angles of the triangle; two sides are formed as in cricket. The ball (soft 4-inch, made for the game) is ladled or loffed at the signals, which are defended with the back of the loffel; should the signal be hit, it turns over on a pivot, which means out, or those in may be loffed out by striking either of the signals while running for the score. Those fielding are each provided with a ladle, or loffel, and try to cup the strikers out at the first bound of the ball. The runs are scored from angle to angle, as in cricket, as there are three in, one round makes three points. The game admits of great variety. The ball is not touched with the hand in any part of the game, but ladled, and can be thrown, as in a sling, to a long distance. We understand that the inventor claims for this game a three-fold advantage over the bat and tennis racquet. With the former you can loff (or sling) bat and cup; with the latter you can bat only. It is impossible to say of how many developments the game is capable, but further experiments are, we believe, contemplated next Thursday at the Holyrood Street School Treat to come off at Halfield, weather permitting.—*Chard and Ilminster News.*

Second Report:—

We must not omit to mention Mr. Gillingham's new game—or rather one of the many varieties of which it is capable—was fairly tried and stood the test wonderfully well, all who played being greatly delighted, whilst many others looked on predicting great popularity for it when known.

Tripo may be played with wickets, racquets, or five bats.

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THE TRIALS OF AN INVENTOR.

In the last edition I published my trials as an inventor with a view to point out where the law should be amended in the new act which was soon to be passed. At the same time I was in correspondence with those interested in passing the bill. I was thinking of leaving it out in this edition, but on second thoughts, as I have had a similar experience under the new Patent Act, I have inserted it again, that the young inventor may get some idea of the difficulties that stand in his way and for which he does not bargain.

Under the new Act you get a longer time to perfect your invention before lodging the final specification. The first cost of patenting is lessened, but after four years you have still to pay the £50 tax and after seven years the £100 tax. But, instead of paying it in one lump sum, it is made easier by being received in yearly instalments. In case of dispute it may be settled before the Comptroller. If outside his jurisdiction it must take the same course as under the old law, namely, that of a Chancery suit, which may, to the poor inventor, mean ruin. I am now just paying my hundred pounds tax on my Patent Radiator in yearly instalments. I paid the £50 in one lump sum after spending £500, and before I had seen sixpence profit. What we still contend for is this—that the £50 and £100 tax should be done away with and that, like the Americans, a complete patent should be granted for £7 for a term of fourteen or twenty-one years, and a tribunal that will save from ruinous expenditure. It is true there is a kind of tribunal held out under the new Act, but it is not of the kind that an inventor would expect, as the following eperience under the new Act will show :—

An inventor ignorantly takes out a patent for one (of mine) already in force. He manufactures and sells. He is given notice of the infringement and asked for a meeting to settle the difference. Counsel is consulted and this is declined. I am now called upon by those working my patent—on which £1,000 had been spent—to defend it. As no concession is made my patent agent engages counsel and commences an action in the High Court of Chancery. On my visit to London, to state the nature of my claim, before going to Court, I offer to come to some arrangement, and made another overture to meet it ; this was accepted. The original and the infringed article stood side by side. There was certainly a modification in the configuration with appendage, but this did not affect the patent proper. In my agent's 20 years' experience he said he had never seen a nearer copy. Certainly, said the counsel, it is very close, and you had better settle. As the defendant had infringed unknowingly I had to treat him as an honest man. So an arrangement was come to that he would work the patent and pay me a royalty.

The enmity was at an end and we became friends. He returned with me to my hotel and we supped together. Now, I said, why did you not come to a settlement before ? Because my agent and counsel would not let me. All I can say is it would have been ruin to have gone into Court. (Now the following is the point I want to arrive at and impress the reader with). His reply :—"If it had gone into Court the first thing my counsel would have done would have been to try and overthrow the

patent, by proving it was not valid (when the plaintiff had taken out one for the same thing.) If they had succeeded I was to pay nothing, they were going to have the expenses out of you. But if they failed, and the action went against me, I was to become a bankrupt and leave you to pay all expenses."

This was my experience under the new Patent Law. The Government takes from me £175 for a complete patent and then leaves me to protect myself, which I can only do by means of costly litigation. What I argue is that when once patent rights are issued to an inventor the law, upon being appealed to, should undertake the cost of prosecuting infringements of that patent just in the same way that persons and property are protected by the Criminal Law. As the law at present stands, if an inventor should fall into the hands of unprincipled imitators, and they knowing they have nothing to lose in case of failure, he may be financially ruined by having to protect his undoubted legal rights.

I once knew a man who brought an action against an infringer and defeated him; the trial cost £4,000, and, although he came off victorious, it cost him £2,000. You may become a benefactor to your race, yet, in evolving your talents, they may cause your utter ruin. I will now pass on to my earlier experiences, as published in a former edition. A good invention is nearly sure to be infringed and is the first sign of trouble.

This subject is a deviation from my general prospectus, but as an inventor I think it a fitting opportunity to set forth a few facts more immediately connected with my own experience.

Carlisle thanked God he was not born an inventor, and well he might. The man who begins to invent, to him it is but the beginning of trouble. Unless he has capital, tact, and plenty of pluck, it is impossible that he can stand against the contingencies that are likely to arise.

What I have passed through in my little way is only a tithe of what others have had to contend with, many of whom have gone on with their inventions until they have beggared themselves and their friends, and at last wound up in bankruptcy or died in a mad-house; few inventors have become successful compared to the numbers that have been defeated and crushed.

It is generally known that my original business was boot-making, which I followed for some twelve years; I had no idea then of turning my attention to Surgical Mechanism or to inventions of any kind. As a tradesman's son I had everything that a good home brings. When I set out for myself I did so with less than a five-pound note; thus what I have attained has been without pecuniary help from any one, and is simply the outcome of cultivated talent, individual effort, close application, and unswerving perseverance.

A few years after I started in my present business I invented my Patent Combined Couch (see page 119). This took me some considerable time to work out, and by the time I had secured my patent my first savings were spent.

MY FIRST TRIAL.

My Couch Patent was soon infringed, and even my prospectus copied. There was a deal of subtlety and cunning about the infringers. Their testimonials had neither name nor address, but the supposed purchasers stated that they had been using the couch five and ten years, of course with the idea of nullifying my patent, which had only been out eighteen months. When a man intends to rob you he will scheme a lie to cover it; with some the most criminal thing is to tell the truth. I applied to a London solicitor to stop the infringers. These pirates evaded the difficulty by saying they were agents. The names of the manufacturers were demanded, and they were severally reminded that they were responsible for selling an infringed article. They declined to give the manufacturers' names. What course was I to take? My solicitor replied, "You must take out an injunction against them; that will cost you £49." (Well, I had spent all my spare money, what was I do do?) "What then?" "Your first hearing will cost you one hundred pounds, and your second hearing will cost you another hundred pounds, that is £249." "Well, suppose I defeat my opponents and I find they are men of straw, what then?" "Why, then you must pay all expenses." This took the wind out of me, and my position can be better felt than described. I had to throw up and come home and bear it. "Oh," I said, "if this is what the Government calls protection it tends rather to cripple the energies of the inventive and the industrious, and it does not end here: if you defeat one you may have to fight a number, and so you may go on until you have spent your all to keep your own."

Now, the first hundred pounds an inventor saves is generally the hardest earned money in the whole of his life, and when swamped in this way it takes all the heart out of him. I have more than once been like a rat in a trap—I could see my position through the bars of the cage, but where deliverance was coming from I was at a loss to know, but it has come, and I trust others will profit by my experience.

The Government of this country takes from every inventor, if he carries out his patent, £175 (in one or in three instalments); in addition to the agents' fees it amounts to £200. Before this outlay, there is the plodding, working, and mental strain to produce the invention; after its production there is the engraving, printing, advertising, and exhibiting it, in order to bring it into notice; this, if your capital is limited, swamps everything. In addition to this, to fight infringers who try to rob you, takes more than the generality of inventors are possessed of to stand the strain.

In this country the patent grant lasts for fourteen years; in America you get a complete patent for £7, and a grant for 21 years. Unless England's sons are placed on a footing with other nations, and a cheaper tribunal provided at which our differences can be settled, it must crush out the spirit of inventors, and materially affect the commerce of this country. *In this direction the Patent Law must be amended*, for at present a great deal of the latent thought and inventive power is lying dormant, and our markets are flooded with foreign inventions, especially American, they having the scope that Englishmen have not.

A few years after inventing my Combined Couch the *Northfleet* foundered almost close to shore, with a great sacrifice of human life. I then devised a means for saving life at sea. While some have been devising means to shatter men to pieces, my contrivances have been for the amelioration of human suffering. My invention consisted of a life-preserving waistcoat or corset, that may be worn even as an ordinary article of dress without inconvenience. It could be inflated with air from the mouth in two minutes, so that if a passenger is pitched into the water head downwards, he comes up like a cork and floats head and shoulders out of water. I did not patent my invention because of my former experience, but sent it to a manufacturer and dedicated it to the public; I sent drawings of it to the Royal Humane Society and the Board of Trade, and at that time it was engraved and published in the *English Mechanic* and *Mirror of Science* for February 7th, 1873. After the foundering of the *Northfleet*, a meeting was called and convened in London, at the London Tavern, for displaying life-preserving apparatus. I attended that meeting and found nothing approaching my own invention.

Some eighteen months after, I was passing down the streets of Bristol, and I saw my invention placarded as Shonrock's patent life-preserving apparatus—a ship-wrecked crew were floating head and shoulders out of water, carrying children on their shoulders. I wrote for Shonrock's specification, which was filed 18 months after my invention, and I sent him photographs of the original page of the *English Mechanic* in which the article and invention were set forth; I also set my patent agents on to them, and told them I had dedicated it to the public, and that unless they gave it up I should claim a share in the profits; they tried to ignore and wriggle out of it, and cynically asked me if I would like to share the expenses.

This invention of late has been exhibited at the various Aquariums in our large cities, but, of course, the real inventor gets nothing.

MY SECOND (PATENT AND) TRIAL.

About three years ago I invented my Heat Radiator, which was intuitively suggested to me while contriving an arrangement for moulding surgical splints. Proving this to be a useful invention (see pages 132 133), I did not like to let it slip through my fingers in the same way as my life-preserver, and notwithstanding my first experience I took out another patent. I have often felt that it would have been better for me to have left invention alone, and have given all my energies to my surgical business, but one of my reasons for bringing them forth is, that they may be a source of income when my energies fail; when I cease to stand at my bench, and work in my surgical department, my income ceases, as I depend mainly on my individual efforts; thus a royalty on an invention would not only be acceptable, but a legitimate remuneration. Instead of being what I anticipated, it proved to be one of the greatest sources of vexation and trial I ever experienced, which experience and difficulties I will give by way of precaution to young inventors. Before taking out my patent, I sent for Barlow's book "How to make money

out of patents;" I followed his advice, and instructed my patent agents to search the Blue Books or Specifications of other inventors, and see what had been done in a similar direction, so as to escape collision if patented before, and thus save trouble and litigation. My patent agents made a lengthy search and caught up all in the Blue Books in any way bordering on my invention; finding nothing like my own and seeing that it merited a patent, on their recommendation it was taken out. It was Barlow's advice, combined with the tact and experience of my patent agents, that enabled me to defeat all my opponents. I would recommend Barlow's book* to every inventor; read it before you attempt to take out a patent; it is worth its weight in gold: it is full of instruction apart from the advice it gives. Also get a good agent, not a cutter, for if you pay a little more it is real gain.

My Radiator had not long been introduced before there followed a series of troubles, and in quick succession. Having my protection, I was anxious to take the advantage of an exhibition. I exhibited before I secured my seal, which inventors should not do, as another may copy your invention, secure the seal first, and do you out of your invention. *Here the law must be amended;* many an inventor has been taken advantage of in this way. At this Exhibition a rival inventor met with one of my prospectuses; he had taken out a patent just before me; ignorant of each other, both our patents were lodged at the office about the same time. He saw there were certain features about my invention bordering on his own; he hastened to secure his seal (you cannot maintain a case in court until you have done this), and then entered an action against me, tried to clutch my invention and tack it on to his own; this was a bit of sharp business practice. There was some smart fighting, counsel hired, and a meeting held in London. Now my agents fought all my battles for me, and this is the advantage of having good agents. My opponent was asked what he claimed; he stated. A Blue Book was at once produced which showed him that he had no right to his claim; it had been patented long since and had expired. Of course he was defeated.

As a Surgical Mechanist, one sees the sympathetic side of human nature; when sufferers come to be helped they tell you their trouble and get you to relieve their burdens; but if you want a few lessons in sharp business practice, become a patentee, and an inventor, and human nature will present to you a totally different aspect; you will see how men will shift and twist to gain an advantage, and how exceedingly shy they are of any invention that takes their line of business. I will detail a few facts in point, and you will see that self-interest is perpetual motion. I would first say that after inventing my heating arrangement, from necessity I invented my own lamp and gas burner, as I was limited to power and could not get manufacturers to make what I required. With my first heating arrangement (of which there are 20 different ones in my specification) I could place it over an ordinary duplex lamp, and, without interfering with the light, bake a 4 lb. loaf with the heat that escaped

*E. Marlborough & Co., 4, Warwick Lane, London.

from the chimney—thus light, heat and bake at the same time. I wrote and informed the makers of the lamp what I could do by storing and utilising the heat.

They wrote to say that they were makers of first-class high-power oil stoves, but they had never such results by such simple means; they would be pleased to take up my invention and introduce it.

I then sent them the lamp, a 4lb. loaf nicely baked, and the simple apparatus. When they saw how it was done, there was nothing in it; but before they knew the *modus operandi* it was a wonderful discovery. Is not this extraordinary? How it helps one to read human nature! I will now give you another lesson.

I was recommended to place my invention into the hands of a large manufacturer; I sent my drawing and arrangements and asked him to take it up; he wrote to say he was just thinking of bringing out something of the kind himself (strange the thing should have struck him at that moment) On seeing my Radiator he set to work, and to evade my patent he constructed a T pipe and put it on the top of one of his oil stoves, and wrote to say that he had proved a long T pipe on the top of one of his stoves and found it answer very well as a heat distributor, but he could not see what there was to patent, and he did not see why he could not use it. If there was nothing in it why did he not leave it alone? (He knew better, as he had many patents). I wrote and complained of his meanness in trying to take advantage of my invention, and said I was recommended to him as a respectable firm. To which he replied he thought he might employ the long T but he wou ld not make the ends turn down, which was the principle feature in my patent (but by moving my end covers, which was optional, I had the T, but analysis was arrested). If there was any difficulty there was no objection to a small royalty. Of course this admission was sufficient, but he has since sent out a T pipe on his stoves, with open ends to evade my patent, and called it registered. What do you think of it?

My next trouble is (at first sight) one of a more serious nature; now follows my second opposition by one of the largest oil stove manufacturers in the kingdom. I am first charged with infringing his patent right, and threatened with proceedings; all my books are demanded and all profits and royalties received from my agents are to be handed over to them. My opponents are asked what they claim and to favour us with thenumber of their specification, which was sent for. This was an ordinary oil stove with a vertical pipe at the back, and a wind-guard at the top to prevent the wind blowing down. On the ground that they had a pipe to the stove they claimed every other stove that had a pipe, regardless of its arrangement or action; where is the common sense of the opposition? My invention was at the antipodes of theirs in arrangement and action, for my chimneys or outlets were turned upside down. They sent their agent to London and thought they were going to settle me, but they found it was of no use, for they had not the ghost of a chance, and like others were defeated. Some will try and claim anything if they see it will answer their purpose to do so.

Now follows another trouble of a still more serious nature. In quick succession one difficulty follows another. My London manufacturers are exhibiting at a show; they are ordered by a rival inventor to remove the Radiators from the exhibition (which they decline to do); they are also threatened with proceedings; I am threatened as well as my manufacturers, Two solicitors are engaged in Town to begin the attack on us in right earnest as infringers of patent rights. The mistake with most patentees is, that they cannot define their own inventions, neither can they define what they claim. It was the case with this opponent. Now this becomes a serious matter. When a man infringes, you take out an injunction against him, and it is a case for the Court of Queen's Bench, but when there is a dispute between two patentees who have secured the royal seal, it is a case for Chancery, as the Queen is not supposed to grant her seal for that which is not valid. A suit in Chancery is ruinous even to the man who wins. It is not simply the going into Court, but what it costs you to keep your own; and *here the law must be amended and a cheaper tribunal provided or some other measure taken.*

There is no alternative for me, I must fight; on one hand I have a Chancery suit before me, on the other a number of manufacturers who have been to some considerable outlay. With the Egyptians behind me and the Red Sea in front—what am I to do? What with this incessant irritation, what with my surgical business and the close application and hard work it requires, and the care of a number of patients on me with their intricate cases, I am tried exceedingly. But here Barlow and my patent agent steps in: the latter is in possession of the specifications of my rivals, and, further, is in possession of the specifications of a patent heating arrangement like those of my opponents, but long since expired. The attention of their solicitors was called to these specifications; this settled the matter, and they flung up the sponge.

Now follows another side to this question. Instead of defending myself I have to attack. Not a few are under the impression that they can copy any invention for private use; this is a prevailing mistake. If a thing is so simple that anyone can make it what is the use of the patent? Why is it allowed? It is not allowed by patent law. Why, then, is not the infringer stopped? Because of the expense to be incurred. If a man insults you, you take out a summons for a few shillings, and you get a hearing for a small sum, but if a private person copies your invention, if he is not worth ten shilllngs, and is obstinate, you must take out an injunction against him, which will cost you £49; thus the law encourages petty infringers, who are like hornets; *here the law must be amended.* There are not a few using my inventions in this way, and because I do not choose to spend £49 to stop each of them (and bear all expenses of trial if they have nothing), they are allowed to go on. When a wealthy man infringes in this way you can attack him, *but when otherwise it is a loss.*

Then there is copying a patent, and trying to evade the law by making some slight alteration. These alterations are made with the idea of clutching the original invention. For example, it is the arrangement combined with the principle of action that is the feature in my

patent, and there may be twenty different arrangements, but the same action and laws brought into operation. My uprights, for example, in some of my arrangements are round, sometimes twisted or fluted. But one man is making them square for his own private use, with the idea of evading the patent; this configuration does not affect in any way either the principle or working, and if he understood the science of the invention, common sense would see differently, but it is blind when injustice steps in. Now, there are all kinds of robbers. Some, in order to pluck an invention, will bring out what they call an improvement, and patent it, with the idea of covering the original invention. *Here the law must be amended.* If it is really an improvement, the inventor should not be allowed to use the original without handing over to its inventor a sum of money or a royalty for using it. But many a man, after years of study, has been robbed in this way. In writing as I do, I do not pretend to exhaust this question; it is many-sided; I simply throw out suggestions that my own personal experience has taught me for the guidance of others.

Now follows another class of trials and they are incessantly cropping up. In my own case I granted a number of licenses to manufacturers who take in a certain radius of country; when they go over each other's boundary, there is jealousy and division, even in some cases leading to law; I am appealed to by both parties to decide the battle—not pleasant. Another manufacturer takes the license, say for three years. He does no business, he locks up the whole district of 50 miles radius, taking in all the towns within that circuit, and, having the license, he will not allow another to be granted to one who will work it; this dog-in-the-manger course is awfully trying to an inventor, for some would take the license to keep others out of it. This reminds me of an invention I brought out some years ago. I did not patent it. A certain firm asked for it, and said they would push it. I said I would give it them if they would give it my name; this was promised. Months went on; I saw nothing and heard nothing of it. What did they do? They gave my invention a pat on the head, put it on the shelf to keep someone else out of it, and pushed theirs for the same purpose, and selling at three times the price. So with my heating arrangement; a large church can be heated by it for from £12 to £20 when rightly arranged; a man who takes the license will not push it if he can lay down hot water apparatus at £150 or £200—not likely; this shows the importance (in competition) of a patentee working his own invention, if possible, instead of placing it in the hands of others. An inventor has to prepare for all kinds of contingencies and vexations that he does not bargain for when he begins. Up to the third year of my patent Radiator, I spent £500 on it, and before I could realise sixpence profit the Government asked me for £50 stamp duty; this they screw out of me after all this battling. One estimates what it cost in money, but do not know what it costs in mental strain, in breaking one's peace, and in loss of nervous energy. Instead of the Government taking £50, they should give an inventor £50 to encourage him, as they do in school grants; but no, they take this money and place it into the consolidated funds to support wars and bloodshed. If the Government would grant

to every poor inventor the loan of £50 and a free grant, on proof that his invention was good, and give him the chance to repay in instalments, it would be far more commendable.

Before leaving this question of invention, I will state one or two things that have come under my notice, in which direction *there must be an amendment of the law.* The Government, in the dockyards or elsewhere, can take any man's invention and use it (so I have been given to understand) without paying a royalty to the inventor. Now, all the officers of the State are paid out of the revenues of the State for their services, but the Government not only levies a heavy tax on the patentee, and takes £175 from him in fees, but takes his invention and uses it without giving him a farthing; *here the law must be amended.* I could extend my suggestions further, but I will now turn your attention to another class of difficulties which are not less trying, and have more to do with the introduction of an invention and bringing it before the public. I mean

EXHIBITING AND EXHIBITIONS.

Exhibitions are good institutions when rightly, skilfully and justly managed, but they are too often the field for party favour, intrigue and injustice. For anything of merit, I prefer an exhibition where there are no awards, and where all stand on neutral ground, so that everything may stand on its own merits, for many awards are granted to things that have no merit.

When an inventor has brought out an article, unless he gets some house with a good connection to take it up, he must call public attention to it himself; this means time, energy and money. Promiscuous advertising is no good; extensive advertising is beyond the young inventor's means. Personal contact is the thing; I have always done more by this, which costs little, than by the many pounds I have spent in advertisements

I will give a few of my experiences at exhibitions, but I will first make an assertion: when you see a long list of patrons and distinguished names heading an exhibition prospectus, it is no guarantee that you will get justice. Many of these gentlemen who give their names and money as promoters of a good scheme, would never do it if they knew how some inventors are treated. Where medals are given it is no proof that it is the best articles get them, as at times the way in which they are secured is in no way justifiable; in fact, experienced manufactures and the intelligent public fight shy of many exhibitions; the difficulty is to know where to put confidence and how to get fair play.

I was exhibiting once. On entering one morning an exhibitor said, "There is tipping going on here." "What do you mean?" "Bribing." "Nonsense," I said, and pooh-poohed it. The next day from another part of the exhibition I heard the same. "Well, I tell you this, if you have not a friend on the committee, you won't get anything." This greatly surprised me; I find it is largely done, but how revolting to a man's sense of right! A friend of mine told me he was once exhibiting; some gentlemen came to him one day and said that if he would give them a certain sum of money they would put him in the way of getting an award, and this is not unfrequently how it is done.

Further, if you exhibit in competition, you must attend yourself; I was on one occasion invited to exhibit. I could not go, but arranged to send exhibits and pay expenses. My invention was delivered in due course, space allotted, and my name in the catalogue; but no exhibits were to be found. After it was over, and the awards distributed, my exhibits were found concealed in a recess behind a door.

I was invited to another exhibition; I declined to send exhibits as I could not attend. There came three appeals from the honorary secretary; I stated my reasons as above for not sending goods. I was assured that I should have the same advantages as others. I sent. The exhibition over, the secretary writes me to give an account of my exhibits for a report; at the time my cases had just been returned; on opening them I found they were sent back as I had packed them; the packing case had not been opened. This is how inventors who cannot afford the time are humbugged. If you wish to get on you must not trust to others.

I will now give two incidents connected with two of my licensed manufacturers. One was exhibiting my invention with his own exhibits in the North; they were kept at the exhibition, with attendant, ten weeks on expenses. A day was appointed for the executive to see the goods in the manufacturer's section. Accordingly, he arranged to be there at the appointed time, but these gentlemen were several days behind their time; my representative could not stay; and after ten weeks of expense, those who were not present to explain their exhibits were passed by unnoticed.

Another of my manufacturers attended an exhibition in the West, and went to some considerable expense in fitting up arrangements, mine included. Three months passed over before the awards were given, and instead of noticing his ranges and smoke-consuming apparatus, &c., they were passed over, and they gave him a certificate for a Bradford washing machine, which was put in by chance to fill up the space.

Oh the vexations and trials of exhibiting! But the worst treatment I ever received myself was at the hands of the Smoke-Abatement Committee in London.

I was induced to exhibit my heating arrangements at this exhibition. I was informed that all inventions would stand on their own merits; that they would be fairly tested, and awarded accordingly. I exhibited several arrangements; they were daily in action for nine or ten weeks. I also demonstrated that these cylinders, if used with proper care, may be in action for years and the insides not carbonised or soiled, and also showed how the products could be separated and carried off without vitiating the air. As I had granted a number of licenses to manufactures, I need not have spent sixpence, but simply held up my hand and take my royalty; but this exhibition being a national affair, I thought it a fitting opportunity to exhibit my invention and stand on my own merits—a fair field and no favour. This exhibition led me into an expenditure of £75. A time was appointed for testing my exhibits; accordingly, my London agents, Messrs. Treggon and Co., sent a man from their works and fitted up the gas fittings in the testing-house at their own expense; the day was fixed for testing, a month before the

close of the exhibition, but it was put off and off until the close. I went up to Town to pack up, found no test had taken place, and complained: I was told by the engineer that if I would wait a day or two, it should be attended to. Went to the testing house; there were the gas-fittings as arranged a month previously. I was told it could not be attended to for some time; I could not stay about on hotel expenses, and accordingly packed up and came home. What with the expense I was led into, the expense of advertisements, and of the intelligent officer provided by Messrs. Treggon and Co., this exhibition cost us one hundred pounds.

I came home and wrote complaining to the Committee, when my difficulties were explained away by their telling me that if I would send my exhibits on to Manchester, where the exhibition was removed, my arrangements should be tested. I need not tell you that I writhed with indignation; but, of course, there is no redress to be had from these gentlemen. What did I say? "Gentlemen, handsome is that handsome does." Thus one has to grin and bear it. How can just awards be given if exhibitors are treated thus, and I do not stand alone in this matter. What right have those who get up exhibitions to drag inventors about on expenses in this way? What do they know about their struggles and trials? They are not the men to make laws and rules for hard-working men; their intentions may be good, but they had better keep their services and make way for others who know better how to deal with inventors. After being treated thus, I was asked if I would contribute to a testimonial? What do you think of it, reader? These gentlemen seem to promote one another at the poor inventor's expense. At the above exhibition I invented my open fire-grate for consuming its own smoke and preventing unnecessary waste of heat up the chimney, for which I took out another patent (see page 136). Up to the time of my exhibiting at this exhibition, I had spent £500 on my Radiator. The Smoke-Abatement Exhibition led me into an expenditure of £75; on my return home, I received a notice to pay up on my patent grate, which meant £30 more, and to work it would have cost me £500. A few days after I received another notice to pay £50 stamp duty on my Radiator from which I had not realised sixpence. After three years' fighting and tugging, I felt these expenses crushing, so I abandoned the patent Grate, and paid the £50, with agents' fees, in order to still hold on to my Radiator, as that will, I believe, ultimately pay; but how many sink before they get as far as this! Had I been dependent on the profits of my inventions, without my Surgical business to support me, I and my family long ere this would have been beggared. This ends, for the present, my trials as an inventor. What is looming in the future is wisely hidden. I have just come in contact with three young inventors, two I have frightened out of patenting until there is an amendment in the law the other has patented and is filled with enthusiasm. "I would not discourage you, friend, but I have been over the ground, and know what contingencies will arise, and believe me, your delight is but the beginning of troubles. If life is only valuable as long as it can be enjoyed, and you can be free from irritation, then do not patent," and yet since writing this I have taken out two more!

LIMBLESS WORKERS.

I have seen some very remarkable cases of limbless workers. Once, when I was walking through the streets of Paris, I saw a man, without any arms from the shoulder-joints, seated on a table, drawing with his feet. I asked him to sketch me a bird, which he did, putting in the colours in flourishing style. At another time I saw a Bulgarian lady, who had lost her arms from the shoulder, using her feet in a most remarkable way to knit, sew and cut with scissors. I asked her to cut me out some designs in paper, which she did whilst I stood by; but the following will show how marvellously any loss is compensated for by the gift of extraordinary powers. I have seen the last remarkable case mentioned in this list—John Carter's Life and Drawings—they are marvellous productions.

There is now making a tour of Europe, exhibiting in the different towns, a limbless man, who does many things that must be seen to be believed. He was born without either legs or arms, and yet he can write letters, cut paper with scissors, pour water from a bottle into a glass, eat with a fork or spoon, take his watch from his pocket, open it and put it back, thread a needle, and fire a pistol! His name is Nicolia Wassiliewitch Kobelkoff, and he was born at Troizk, in Siberia, in 1852, a fourteenth child, all his brothers and sisters being properly formed. In 1876 he married an Austrian woman, and by her had five children, all of whom were fully developed. Kobelkoff has the rudiments of legs—one thigh being six inches long, the other being about two inches longer—but for a right arm he has merely a conical mound, and for a left arm a rounded bone representing the humerus, and with these stumps and their atrophied muscles to conduct an entertainment is not easy. However, the Russian manages to make himself fairly interesting. He sits at a table, fixes a pen between his cheek and arm, and writes away in a good, clear, commercial hand. And with the same combination of cheek and shoulder he does most of the other things, the most seemingly difficult being that of feeding himself. The way he threads a needle is to take it in his mouth and stick it in his jacket, and then putting the thread in his mouth pass it through the eye. He can draw passably well, and he draws as he writes. The strangest thing is to see him load a pistol, aim it at a light candle, and shoot the light out. He even tries some acrobatic performances, but these are not very striking, consisting merely of jumping off his chair and doing a sort of sack race across the floor.

It is a significant fact that if a man is crippled, the more crippled he is the better chance there is of his getting a living. Even if charity is appealed to there is most chance for the most afflicted. Kobelkoff seems, without limbs, to earn a very comfortable livelihood—a better one indeed than many thousands who are fully furnished. And so it has always been. In Brittany, about a dozen years ago, there was a girl without limbs whose parents made quite a fortune in showing her at fairs. And that reminds us of the Dutchman mentioned by old Stow, the chronicler, who, with his two arm stumps, could keep a cup of tea up in the air, throwing it from stump to stump like a professional juggler; and who shot with arrows and went through the soldiers' drill of the period. Very like Kobelkoff, and helping himself in the same way, was Matthew Buchinger, whose portrait is in the British Museum. And we hear in our own days of a certain nobleman, without arms or legs, who lived in a basket, and drove his horse from reins fixed to his shoulders. And then there is the well-known case of Mr. Kavanagh, M.P., who was one of the competitors in our own competitions, and who won a good place, though he had no arms.

One of Watteau's students was Cæsar Ducornet, who was born without arms, and with only rudimentary legs, and yet carried off all the prizes at Lille, won gold medals in Paris, and had pictures in the Louvre. He used to hold the pallette with one foot-stump and use the brush with the other. A slender scaffold was built in front of his easel, and on this he writhed and twisted, climbed and crouched, leaving traces of colour wherever he passed, traversing the canvas with the swiftness of a fly upon the wall.

At Antwerp recently there was an artist who copied the masterpieces of Rubens, and yet had no hands. All his work was done with his toes, and so well did he paint that his pictures fetched a higher price for their artistic merit than those of any other artist in the city. On the foot with which he shook hands he wore a black glove. There are many cases of women sewing with their toes; and there is one remarkable instance of an armless watchmaker, who used to take watches to pieces and clean them with his toes. In the London streets, during the last year or so, a man has planted himself in quiet corners notting with his toes; and writing with the toes is an ordinary performance that anyone can do with a little practice.

One of the most extraordinary cases of work done by a cripple was, however, that of John Carter, a velvet weaver, who fell from a tree, broke his neck, and yet survived, paralysed from his collar-bone downwards. He had no feeling in his body or limbs, and could even be pinched or bruised without knowing anything about it. For fifteen years he lived in bed, at first reading then painting, holding his brushes in his lips. His copy was hung by tapes from the roof of his bed, and after a time he had a desk made by a friend under his own directions, on which his drawing paper was secured by pins. It stood beside his right shoulder, about six inches from his face. The pencil with which he drew the outlines was placed in his mouth and guided by his lips. The rest of the work was carried out with very fine camel's-hair brushes, the cheap ones which may be brought in a country shop.

After years of patient endeavour he could copy accurately, line for line, the finest engravings; and these copies fetched good prices in America, where many of them were taken. Considering that no line once made could be erased, and that he could not measure or space out his work, the accuracy which distinguished him is wonderful. His masterpiece was a copy of a "Virgin and Child," after Albert Durer, in which every line is as if photographed, true in direction, weight, and swell, and delicate as silk, particularly in the veil, which loses nothing in transparency. To draw such lines on the hard metal is not easy, but to draw them with a brush held in the lips on paper resting on a little desk in bed, is enough to make us wonder of what the human frame is capable, if only directed with perseverance.—*Boy's Own Paper.*

An Abridgment or Synopsis

OF A

WORK ON PSYCHOLOGY,

OR

Inferences and Inductive Teachings from those who have lost their Limbs and Senses.

BY

JAMES GILLINGHAM,

Surgical Mechanist,

CHARD, SOMERSET.

"The invisible things of Him from the creation of the world are clearly seen, being understood by the things that are made, even His eternal power and Godhead."—Romans 1c. 20v.

1888.

PSYCHOLOGY.

"The Doctrine of the Nature and Properties of the Soul."

By JAMES GILLINGHAM,

Surgical Mechanist, Chard.

SEVENTEEN years ago I published a work on the immortality of the soul and kindred matters. I was attracted to the subject by facts and phenomena connected with my patients. About four years ago I wrote a series of articles (39 in number) on a kindred subject and the lost senses. I was led to the latter by the remarkable gifts and phenomena manifested by a sufferer who at the time was blind, deaf, dumb, paralysed in her legs and left arm. These articles appeared in our local paper, and were widely read, and by not a few literary and scientific men, with an oft repeated request that they should not be laid aside, but some day be revised and published in book form. The contemplated book will comprise a revision of the former work and later articles, together with other gleanings and interesting matter on the same subject.* In this abridgment I will give an outline of the work, with a selection from some of the many facts and their inferences, which will give some idea of the character of the book.

It is not usual for business books to have pamphlets of this kind appended to them. It seems, at first sight, out of all character with such practice; but as the patients whose cases are represented here led to the subject, and on whose testimony the inferences are drawn, it may not be altogether out of character. I make this apology; but yet, why should I? If a man believes the Truth, and tries to live a truthful life, mindful of his own weakness, why should not every act of his life become an act of worship? whether he works at his bench, serve at the counter, or preach the gospel; and as my work lies next to that of preaching the gospel—the amelioration of the sufferings of my fellow men—I venture to append this synopsis. In these days we see all kinds of rare bits, thrilling stories, quotations from the poets and best writers.

* I cannot say when it may be published, as it would form a work of some six or seven hundred pages.

used to clothe advertisements, and when one has nearly finished reading are completely surprised to find that it finishes up or concludes by recommending some wonderful pills or ointment. I may say I have no such object in view.

I shall divide the present subject into three sections: The natural or scientific aspect, the sceptical and biblical, and lastly my own personal experience from a psychiological point of view.

First—The natural or scientific aspect, or fact and phenomenon, with their inductive inferences. I put it in this way, as you will see that what I offer as inductive teaching to others is positive fact to me.

Some twenty-four years ago my attention was especially directed to the sensations and consciousness of the existence of a limb after its amputation. The first time my curiosity was excited was when I was interested in the Gamekeeper's case, referred to in the introduction to this book, whose arm was amputated at the shoulder joint, and who assured me that he was not conscious of his loss; he felt he possessed the arm still. It seemed so startling to me that it set me searching for the why and wherefore. The key-note was struck; the results of this research led to further investigation from time to time, as the cases came under notice, and they were recorded and published. I shall not ask the reader to accept my inferences on the amputated cases only, but on the facts as a whole.

In February, 1888, I met the Keeper—who is now a rural postman. I said to Wm. Singleton it is now twenty-five years ago I fitted the artificial arm, the natural one has long since returned to the dust in Winsham Churchyard. Can you still feel your arm? Yes, was the reply, as plain as ever. Where is it. My arm is down by my side and my hand is in front of me; sometimes it is over my chest. I feel it now whilst you are talking, and my two middle fingers especially, as plain as ever I felt them in my life.

Not long after I first had to do with the keeper's case I was recommended to a gentleman at Manchester, who not only suffered the loss of the entire arm, but the whole of the shoulder-blade was removed with it, leaving only the collar-bone for a rest, and for whom I could do nothing. The amputation was considered so skilful that the sufferer sent me, for my acceptance, a photograph of his case, taken for the profession. During our correspondence I asked him if he felt his hand and arm, thinking the removal of so large a portion of the body, and at this junction, may cut off the consciousness of it, to which he replied, "The arm has been amputated four years. I enjoy life wonderfully, but the feeling of the hand and arm remains. At times I feel my hand and arm plainer than ever. By day my arm hangs beside my body and my hand rests on my hip, by night they lie on my chest." Please note the conscious limb occupies the same space and place as it did before the material covering was removed.

I reasoned thus: If so large a portion of the body is removed and he is conscious of a perfect manhood, in spite of the loss sustained by the body, will he not continue to be conscious when the whole body is laid in the dust?

The same consciousness remains after the amputation of both legs and arms. A patient with two legs off, forgetting he has lost them, gets out of bed, with the intention of walking and falls on his stumps. Another patient with arm off nearly at the shoulder, let a book fall off the window bench, when he instantly put forth to catch it the hand that had suffered amputation. There was still the will and the mind to call the hand and arm into action, but the material instrument that the soul uses, and the mind acts through, is removed. Those who have suffered amputation use their limbs in their dreams as before. Time does not obliterate this consciousness. There are times when it may subside, but with the least sickness or change, the limb is quickened into sensitiveness. The same may be said of us when in a state of health or convalescent, we are not conscious that we have limbs. So wonderful is the harmony and unity of the mind, soul and body, and so perfect are they in their working, that we are scarcely couscious how we move or act. It is only when we begin to move and work, or when we become sick, or a member is injured, that we are awakened, simply because the the soul is pained and intered with in its course of action. It does not follow that we should always be conscious—the soul's activities go on below consciousness.

I knew a sufferer who had lost his leg above the knee for seventy years. He never lost consciousness, but when near death the amputated side became very sensitive and when in bed he turned one leg, he turned the other also.

When in a condition of coma or trance, the natural senses of somnambulists or clearvoyants, are sealed or suspended, they can see the limb all aglow from the point of amputation surrounded by a kind of magnetic environment.

What are the inferences drawn from these facts and phenomena? That the soul is the man: that it fills every part of the body—the tip of the finger, the tip of the toe, to the head; that it remains intact in spite of any accident that may happen to the body—as one entity and unity indissoluble, and its perfect oneness is in its conscious existence as a whole. Thus, if the foot is hurt, it is I that feels it; if the hand is hurt, it is I that feels it; if the head is hurt, it is I that feels it. Thus there is a oneness and consciousness that lies deeper than the nervous system.

The soul fills the body and clothes itself with flesh as with a garment, and when we cut off a limb we do not cut off a piece of the soul—the man.

Further, matter does not feel, neither has it form of itself. (See Drummond's Biogenises, in his Natural Law in the Spiritual World.) It is the soul that feels and is conscious, clothing itself, and thus gives (form to matter) identity and likeness to the man in whose countenance beams thought and intelligence. The foregoing I will try and make clear by a selection of cases and facts that have come more immediately under my own notice.

First, let us take the scriptural definition of man's tripart nature, we can have no better—spirit, soul, and body. The body, the tenement of the soul, the man; the spirit (the divine) is the highest part in man

that which distinguishes him from the brute creation. Thus, with mind and conscience, he is part of divinity. The soul, I take, to be the created powers, with affections, passions, appetites, and capabilities, inasmuch as it can be elevated or debased, saved or lost, according to the life lived. If the man gives way to the lower passions the soul sinks, gravitates; if he responds to the higher aspirations of the mind he rises above the lower passions, and ascends to his like God. Thus, when the man departs his life, he loses nothing of his essential being, neither are his powers impaired, the trammels are only removed, and he is quickened into intenser life. Further, the soul may be deadened and debased, but the conscience never; it may be lulled, but never quenched.

This article will more clearly set forth the above inferences, and we shall see that man is dual—that is, he has a body within a body—"There is a natural body and a spiritual body" (but please not confound spiritual body with one glorified). There is a spiritual organic whole (not necessarilv material) apart from the natural body. The spiritual body here spoken of is what I call the soul of man, for want of a better definition. The body is the tpye and the natural body the antitype, the body answering to the soul like letterpress to type. The spiritual man, by the facts I shall give, will be seen to be an organic whole, with limbs and senses, but not necessarilycorporal, or material in the sense, in which we speak of matter, but, nevertheless, a real intensified, individual, personal, reality. Further, as the body is the house of the soul, so the soul is the home of the spirit. The two latter can exist without the body, but the body cannot exist without the soul. As the soul and spirit are in conjunction they are often used synonymously, though distinct from each other. I used them so in my first work.

The soul, then, is the intermediate between mind (or spirit) and matter, and is the conscious sensational part; and, though the nervous system connects soul and mind to matter, the nerves are not thought life, or consciousness, they are only the medium through which intelligence travels and communication is kept up with the external world.

Some say the consciousness of the limbs remains in the trunk nerves that lead to the sensorum of the brain, but we must not forget that is only an instrument like the hand or the eye. It has been proved that the optic nerve is insensible to light, the eye does not see any more than a field glass does. No, it is the soul that sees through the external eye by means of internal vision. I know a professional gentleman who had bad eyes; he had to be confined to a dark room for twelve months; but he could see in the darkness. What was darkness to others, was but subdued light to him. Now the function of the eye is for light, but what of a gentleman reading the *Times* newspaper in the dark. What is it that sees? I will try and help you to something like a fair conclusion. I do not wish to force my inferences, but leave the matter for consideration, after giving all the facts and inductions.

Before proceeding with facts and phenomena of a kindred, yet different character, which tend to demonstrate the same truth—for truth is many sided. I will first call your attention to the plan of the human soul and endeavour to show that no accident of any kind can alter or destroy it. That is to say, the surgeon's knife cannot sever it nor any

other agency distort it. My present illustrations will seem paradoxes and a flat contradiction to my first statement, but I must call in Operative Surgery and generation to solve it.

Here is a mother, *enciente*, travelling with her little boy; he has his hand outside the railway carriage door. The Guard closes the door on the child's wrist, but stops just in time to save the hand (beyond a little squeeze). The child's screams—and it appeared to the mother at first sight as if he had lost his hand at the wrist, as it was still outside the door. The mother was so frightened that the child in embryo was born with its hand off at the wrist, Please note the lesson. This illustrates the power of mind over matter in its plastic condition (see index "Freaks of Nature.") I could multiply these cases and tracing effects to causes, but this one illustration must suffice.

Think you, reader, that the soul is deformed because the child is deficient of its hand? Nay! I have many patients born without hands, but only in one case was there consciousness of a hand, as after amputation. Though the hand has been arrested in development and not awakened into consciousness it is there.

Operative Surgery has proved it. I had a patient born with a useless foot with two toes, and he was only conscious of the two toes. But after the amputation of the foot and leg for the purpose of supplying an artificial one it was detected, and there were all the rudiments of the five toes and the perfect foot. The plan of the soul is not altered, but arressed in its development by some unnatural cause. The fact that the toes and fingers are not called into full consciousness is no proof that they are not there. We have faculties and marvellous powers that have never been awakened into consciousness (except in some few), but will unfold in another life. The infant has all its powers in embryo, but they only awake into consciousness as they unfold—unconsciousness is no proof of their non-existence.

Further, those who have been born deficient of limbs have perfect offspring.* I know a case where the father has no legs or arms, yet his children are all perfect; thus what may appear to be deformity of the soul and body in one generation is corrected and perfected in the next.

In cases of idiocy or incompetency there has been a violation of natural laws of marriage with blood relations, so that the soul has been arrested in the development of its mental powers.* Those who suffer the loss of their limbs by amputation and otherwise deformed, have perfect offsprings; thus nothing can destroy or annihilate the plan of the soul. This soul is the Maker's true ideal. He made the body from the dust and breathed into it the breath of life and man became a living soul, and that living soul fused every part. No theory of man can compare with the beautiful description given of our origin by revealed truth, to which I shall direct your attention more especially in the second section of this article.

There are other phenomena of interest connected with those who have lost their limbs, to which I will direct your attention. If a patient with his limb off places the end of the stump against a wall or iron plate, it is a mental fact to him that his leg or arm is through the wall or plate.

*See Limbless Workers.

A surgeon, who had read my first work, though he had taken off some limbs in his time, laughed at me and my inferences. One day he met a man, who had lost both his legs, walking on his knees on two kneeling-pads. The doctor thought he would like to put the matter to the test. So he stopped the man and said, "My good fellow, excuse me, can you feel your legs and feet? "Yes, sir." "Just oblige me by taking off your pads, sit down on the pavement, and put your two stumps up against that wall." The man thought it a queer request, but did as he was directed. "Well, my man," said he, "where are your feet and legs?" "Through the wall, sir, out the other side." He had never noted the fact before.

Some time after this a friend of mine was travelling; opposite to him was a person with one arm off. He said, "Pardon me, sir, I am going to ask you a strange question: do you feel your hand and arm?" "Yes." "Will you kindly stand up and put you stump against the partition. Now, where is your hand." "It is through into the other compartment," was the reply.

Nothing can alter the form and plan of the soul, and no material conditions can resist it. "Stone walls do not a prison make, nor iron bars a cage."

Just as a limb passes through a wall or iron plate, so the soul of the perfect man can pass through a mountain of granite, just as with corporal bodies we walk in the open air. Hence you see that when the surgeon cuts off a limb instead of his cutting off a piece of the soul it passes through the steel blade, being more penetrating to matter than the steel blade is to the body.

I will now pass on to another series of facts, but before giving them let me say that very few have had the opportunity of investigating and furnishing such phenomena; if they have now and then been noted they may not have been of sufficient interest to lead the observer to record them. For a period of twenty years I have treated thousands of sufferers. Exceptional cases that come under notice, such as spine paralysis and amputations, as well as those who have been deprived of one or more of the senses, all bear the same testimony—that the soul possesses the full compliment of the man, all the marked manifestations re-echo the same teaching. Truth—whether in nature, science, or the Kingdom of Grace—is one, and sends forth no uncertain sound to those open to its teachings.

Paralyzed patients bear the same testimony as those who have suffered the loss of their limbs. They are conscious of a perfect existence apart from the paralyzed and deady body. A young lady (a friend of mine) was afflicted with disease of the spine at the apex of the neck or end of the cervical vertebra. She was paralyzed from her head downwards—the whole trunk was insensible to the piercing of a needle. When I saw her she had been lying in the hospital some months with her head propped on each side, her hands resting on her chest in cotton wool, and her legs contracted and drawn up to a right angle. She was a bright and happy Christian; as she lay she was conscious of no pain, and in this condition, on the Sunday she would call round her the patients of the ward and hold a Bible class as when in health in the Sunday school.

She was bright, intelligent, perfectly peaceful and restful in her state. I said to her, You know I am curious, I should like to put to you a few strange questions, will you try and answer them? She smiled and said yes. You are physically dead from your head downwards, how do you feel in yourself and inner consciousness? Do you feel you are all head or do you feel yourself a perfect whole? I feel my perfect self was the reply. Now, as you lie on your paralyzed back, with your legs contracted and drawn up to a right angle in bed, do you feel you have legs? Certainly. Where are they? To my inner consciousness they are straight down the bed. Note here, reader, that it matters not whether the limbs are amputated or clothed with dead matter, the experience and testimony are the same. True existence lies beyond the reach of the nervous system; the soul destined for a higher world is connected by the nervous system while in this lower sphere.

What other experiences have you? I often feel that my whole body is floating in the air, while my natural body is resting on the bed; it is only my head that keeps me down and prevents my rising. Yes, I replied, and when the head is dead (it is only the gravitating head that holds you down) then you will ascend; Jesus ascended. "And when he had said these things, as they were looking, he was taken up and a cloud received him out of their sight. And while they were looking steadfastly into heaven as he went, behold two men stood by them in white apparel, who also said 'Ye men of Gallilee, why stand ye looking up into heaven; this Jesus which was received up from you into heaven shall so come again in like manner as ye behold him going up into heaven.'"

Note the two men who were denizens of the other world, were men, not with corporal bodies of flesh and blood, yet they were men with the full compliment of all the senses, gifted with speech and intelligence. Elijah ascended; the angel ascended in the flame of the altar—the law of gravitation is superseded, not violated. The dead neither marry nor are given in marriage, but are like unto the angels (the two men in white apparel) and when the soul leaves the body you will ascend and be like unto Him (Jesus).

I had purposed preserving the biblical aspect for my second section of this subject, if I allude to it now and then it is to give force and parallel inferences and teachings. Some two months after I paid another visit to my friend; the experiences were just the same.

I will now direct your attention to another case. A gentleman was paralyzed from his neck down. In his case the nerves of motion were not affected—the nerves of sensation only. Pierce any part of his body and he could not feel it; he would take my hand and shake it, but could not feel it, he could only see that he held it; he would take a coin from his waistcoat pocket and hold it up, but he could not feel it, he could only see that he held it; he would walk round the room with help, but it would be an undirected action; he would sit on a chair and converse freely, but if it were in the night and the light was put out, he would drop directly from his chair. I met him afterwards driving his horse and carriage. I stopped and spoke to him. He said you see I hold the reins, but I cannot feel them, I only see that I hold them. I asked him

during my interview, if he were conscious of a perfect existence or if he were merely all head, like my last patient, because this is considered to be the seat of the soul by Galan, and the centre of consciousness? I feel I am perfectly whole, though I am, in a sense, physically dead. I am mentally conscious that I have limbs and a body, though my outer body is lost to all sensation. Here is the same or similar testimony. It is folly to say it is imagination. Do you think all these sufferers are affected by imagination in the same way? Nay, we must look deeper for the solution.

There is another class of experiences I will direct attention to in relation to two sufferers. One of the cases was given me by an old practitioner and the other by one of the senior surgeons of a London Hospital. The first is that of a clerk who lived in perfect health, possessing all his faculties, but with only one hemisphere to his brain, the other had completely wasted away. This young man had filled a situation as clerk and had the full power to think and calculate to the last. According to an old theory it had been asserted that if one half of the brain was imperfect there would be an imperfect mind; but in this case it was not so. The second was that of a young woman a servant who filled a situation up to the time of her death. One half of her brain had wasted away; she became blind in one eye and often complained of pains in the head, but she retained her thinking powers to the last. From these diseases the brain became malformed, but the mind—and that is the point—in both cases was sound and perfect. The malformation did not interfere with the mind's expression and action, as in some other disarrangements, it is there to act if the physical defect be removed, this I will prove presently.

The above facts were ascertained by a *post mortem* examination. Here we have persons in the possession of their mental faculties, with only one hemisphere of the brain. But in the parable of the rich man (which is supposed to be a biography given by one who knew all about the eternal world) the body is laid in the dust and in the other world he thinks and reflects without brains, and remembers his father's house and five brethren, and converses with Abraham across the gulf. Death is not a mental change, it is only a physical one, to which we shall again refer.

Professor Ferrier has proved to demonstration that when one hemisphere of the brain has been removed, all the mental operations may be performed. In such a case there may be paralysis of one side, but the mental powers continue in all their completeness. The difference between the influential, mental, or anterior lobes of the brain and that of the automatic or posterior, I will enter into more fully in the third section when I will, if I may so express myself, demonstrate by personal experience how, in my own case, I can insulate, or suspend in a measure, the influential from the automatic arc, so that the automatic may be influenced from outside. Whilst the intellectual is influential it holds the sovereignty and watches the action. This may be a startling statement, but I can prove it to demonstration.

I stated that nothing can quench the soul and mind, that it was perfect and could act if the physical defects were removed. Here is a girl she is playing with a ball and is in the act of catching it whilst

hopping. She receives by some means a blow on the head and for two years is in a state of semi-unconsciousness. The skull is trapanned, the pressure upon the brain removed when she springs to her feet, holds out the hand and says "Where is it?" She began at once just where she had left off two-and-half years previously, that which would be a long time to a conscious being is but as a moment to an unconscious one. Still the mind was there and it organised consciousness as soon as the physical defects were removed. The Creator has made a similar merciful provision when we sleep; but when we sleep the sleep of death, it is to awake into full consciousness, for all the physical defects and trammels are removed.

The inductive teaching that follows is: That the soul is of the same shape and form as the body, apart from physical defects; that it is an organic whole, with a full compliment of limbs and senses, and that these hold their own in spite of any accident or material hindrances, I said a full compliment of the senses, which I will now consider; but first let me say that the preceding inferences refer more especially to the form of the soul. The human form imparts identity, likeness, personality, and individuality. Without this our conception is nothing short of annihilation. What are materialists supplying in its place after death? Nothing! This likeness and form is the outlook and impress of the intelligent mind and man within, and is one of the evidences of our immortality.

I will now direct attention more especially to the senses, and affirm that that which applies to the plan and form of the soul also applies to the senses, and while the soul is the shape of the body, the brain, the mind, the heart and the affections, are centres of action. My attention was directed some time ago to two articles contributed by Dr. George Harley to the *Lancet*, on his own experience. He was suffering from some affection of the sight and was confined to a dark room for many months. His own account of his experiences on the changes the eye passed through is very interesting, especially from a scientific point of view. What was darkness to others, was subdued light to him. I waited on him personally when in London, and asked for the third article he promised to contribute, which was not then published. My attention has also been directed to another case, where the sufferer could read the *Times* newspaper in the dark.

My attention was called to a sufferer four years ago. She was at the time blind, deaf, dumb, paralyzed in both her legs and left arm; her mode of communication was by writing on a slate, and persons communicated with her by writing on her face with their finger. The loss of her senses were compensated for by most wonderful gifts. (See "Transference of Special Senses" foot-note, page 129.) The nervous system under such conditions becomes highly exalted and attenuated, so that in her waking state she was conscious of her surroundings. The nerve atmosphere, or ode magnetic sphere, which extends beyond the extremities of the body, and in which the human soul is enwrapped, drinks in—if I may so express myself—everything, even to the very colouring of the paper and its pattern on the walls. This I will prove more clearly as I pile up the facts. One of her most remarkable gifts

was that of being able to describe colours. Not one blind person in ten thousand can do this. I went to the Blind Asylum at Bristol and inquired whether the blind could describe colour. They had never known a case since the founding of the Asylum. Another of her gifts or power was that of describing photographs and illuminated cards by placing her hand over them or by placing them on her cheek. If I threw down a whole pack of photographs of my patients into her lap she would describe every one of them. I studied her case with two medical gentlemen, who subjected her to the most crucial tests. Some doubted her powers, so she resolved to gratify no more visitors, but only allow the doctors and any reasonable number to test her on their own conditions, but after the final one she would not subject herself to any more. Several medical gentlemen secured from a stationer a number of illuminated Christmas and New Year cards in sealed packets, and came to her one evening, turned all her friends out of the room, put pads of wool on her eyes and bandaged them, put the light out, gave her her slate and pencil, then broke the seals of the envelopes and gave her the cards one by one, when she wrote a description of each card in turn. The light was then turned up, when the objects on the cards and the various colours were found to accord with her description of them on the slate. Do you believe it now gentlemen? and she asked one of them to try the same test. This must suffice for my present purpose and limited space. I asked her by what means she saw the photos, &c.; she said the moment she put her hand on them she saw them reflected in her mind as if in a looking glass. (She could give this definition as she once possessed her sight.) There is nothing supernatural in this, and it is in perfect harmony with some of the present researches of science, which I will explain presently; it is also in perfect harmony with some of the early researches of Reichenbach, who, like Galvin, Galileo and Capernicus, were persecuted for their valued discoveries. Since studying the above case I met with a work by a Dr. Mayo on Popular Superstitions; in which he speaks of a blind person, known to him, as being so sensitive that her hand would take off or receive impressions like letterpress, the printed characters being presented to the mind. This is a rare gift no doubt. What is it that does see? not the natural eye, but the soul, and the hand performs the functions of the eye. The characters are clear to the mind without the eye; it is not only so with sight, but with hearing and speech. This patient also hears through the right toe (and now by the audiphone through her teeth). So does Laura Bridgman, of Boston Blind Asylum, who is blind, deaf, dumb, and has also lost the sense of smell, having only one sense, that of touch, left.

I was directed to the latter case by a friend. The history of her life was lent to me by a lady of the Upper Norwood Blind Asylum, who was a personal friend of Laura Bridgman, and whom, if now living, must be a good age. After studying the life, I took the book and went over all the leading features with the other sufferer referred to. The analogy between the two cases was the same, with the exception that Laura Bridgman could not describe colour nor photographs. I sent my printed report to Boston, America, to Laura Bridgman. She kindly acknowledged it and sent me a letter full of Christian sympathy for the

one similarly situated—written by her own hand, which letter is a wonderful production.* I have spared neither time, trouble, nor expense in investigating these facts and phenomena.

Before I close Laura Bridgman's case, let me say there is no condition of the human race quite hopeless. Laura was blind, deaf, dumb, and without the sense of smell from infancy ; She lived in darkness as silent as the tomb. Her soul was reached in its dark prison-house only through one avenue—that of touch. Her education is a perfect marvel. Dr. Howe† in her published life, gives the course pursued, which is full of instruction, and is of the profoundest interest. She was taught to read and write, to understand grammar, geography, mathematics, astronomy, and the abstruse sciences, so that she had the power of comprehending abstract ideas of a God and his revealings.

In her early life she had no conception of a God, the immortality of the soul, or death ; but as the soul unfolded, like the plant in the dark cellar, it reached forth its tendrils to the chink in the wall, that it might drink in the light and as it unfolded, it intuitively reached out towards its God and ere long the deeper needs of her nature were met, she could read the Word for herself, and ultimately surrendered her soul to Him who had endowed it with such wondrous powers ; she was ultimately baptized on a profession of her faith and became a member of a Christian Church. The soul's deeper consciousness was awakened, and things and surroundings that have no meaning to us, were full of meaning to her.

The blind sculptor is another example.—Executing correct likenesses in marble by the sense of touch.—Is it not wonderful that men with refined sense can see out of the tips of the fingers ? The mental eye is assisted in the latter case through the ear, and in the case I am about to give, through the fingers. It seems to me that the mental vision is so assisted by every member, that the soul seems all eye ; it sees through every nerve and fibre, simply because the smallest fibre is a part of one grand and great whole, one inseparable from the other. The most remarkable case on record of the kind is recorded by Dr. Kitto, and is that of Giovanni Gonelli ; he lost his sight at the age of 20, and remained ten years in this state ; he was ignorant of the elements of sculpture. But, on a sudden, the desire to make a statue came to him, and having handled in every way a marble figure representing Cosmo-de-Medici, he he formed one of clay, so extremely like it, that it astonished all who saw it ; his talent for statuary soon developed itself to such a degree that the Grand Duke Ferdinand, of Tuscany, sent him to Rome to model a statue of Pope Urban the VIII, which he also rendered a very striking likeness of the original ; he afterwards executed many others with equal success. It is related that the Duke Bracciano, seeing him at work, doubted much that he was completely blind ; in order to set the matter at rest he caused the artist to model his head in a dark cellar ; he then moulded one of the Duke's daughters in the dark, which also proved an admirable likeness. Amongst his works is recorded a marble statue of Charles I, said to have been admirably executed. This is a wonderful power, but like all others it was questioned until put to the test and

*See lithographed fac-simile of Laura Bridgman's letter at end of synopsis.

†See Life and Education of Laura Dewey Bridgman. London : Trübner & Co.

proved. What can our scientists say in reference to many marvellous phenomena that confront them ? What channels of thought they open up ! What do we really know of our true selves ? Comparatively little. I have given fact after fact, all of which only go to confirm the one grand truth that man is a perfect whole, enveloped within a chrysalis shell, that he cannot fully comprehend the higher unfoldings of his being, and that he must pass to the higher sphere before he can fully comprehend this, the lower state.

In Giovanni Gonelli's case—the power seems to have come to him as a kind of inspiration, not having studied or thought of the matter previous to losing his sight, so that there are not only powers and talents inherent in the human soul, but there are gifts and powers that can be imparted and will lock in with those already possessed. The soul is thus a recipient of higher gifts which must be first put in before they can be evolved ; every good and perfect gift is from above. The design of Solomon's temple came to David by inspiration ; the original plan was conceived in the mind of the Divine Architect, and He endowed men with wisdom in carving and cutting work to embellish and beautify the temple. All true wisdom is from God, we have our springs of action in another ; then how futile are the efforts of men to try and discover this power in physical forces.

In conclusion there is one more case of interest, that of a young man who was born dumb. He was working in a coal-pit when a piece of coal fell on his back and he instantly began to speak, using intelligent oral sounds. The soul speaks inwardly until the tongue is loosed.

In the foregoing cases you have the full compliment of senses manifested with all the capabilities and powers of the mind, in spite of the loss of nearly every external sense. Why ? Because they belong to the immortal part—the soul and not to the body. I repeat it again, nothing can stamp out the man, neither can the man run away from himself.

I will now pass on to another experience, similar in testimony, but different in its manifestation. That which I am about to give is the more valuable, because it comes from a medical doctor, who is not without some knowledge of the nervous system. I had been in correspondence with him and he sent me his experience, which, however, I must abridge.

He says I was engaged to a young lady I very much loved. During the early part of this engagement I visited the Hall in the village, not far from the Vicarage where the young lady resided. I was in the habit of spending from Sunday to Monday at the Hall. On one of these mornings of my departure I found myself standing between the two closed windows in the lady's bedroom. It was about five o'clock on a bright summer morning. Her room looked eastward, mine directly west and the Church stood between the two houses, which were about five hundred yards apart. I have no impression, whatever, how I became transplanted from the house. The lady was in a camp bedstead, directly opposite to me, looking at and reaching out her arms towards me, when my disembodied spirit instantly disappeared to join the material body which it had left in some mysterious way. As I returned and was fitting in to my body on my left side, when half united I could see within me

the ununited spritual part on glow like an electric light, while the other united half was hidden in total darkness, looking black as through a thunder cloud, when like the shutting of a drawer the whole body became united and I awoke in great alarm, with a belief that if anyone had entered my room and moved my body from the position in which it lay on its back, the returning spirit could not have joined its material case, and that death, as it is vulgarly called, would have been inevitable.

In the morning at the breakfast table, the young lady said she had a strange experience, she saw M.D. in her bedroom looking at her as she sat up in bed ; and that he disappeared after a short stay, but how he got there she could not say as she was positive she had locked her bedroom door. So one experience corroborated the other.

Here is the man, the soul, under some psychiological condition, out of the body ; it is enveloped in magnetic light ; the seeing and knowing faculties went with it—the spiritual form— the body being at the other house on the bed—the seeing was not of the body. It is not surprising how he got there, when a man who has lost both legs can put his spiritual legs through a wall, and a soul with only a living head to keep it down can float in the air. The Apostle Paul once had a strange experience when he was caught up into heaven. Whether he was in the body or out of the body he could not tell, but he saw things it was impossible to utter. He was caught up and transplanted ; there is no doubt that the natural powers were suspended for the time and the spiritual senses opened and called into exercise. What has happened once can happen again, under the same law, when there is a special purpose to serve.

This peculiar environment of light that enveloped the soul (as experienced by the medical doctor) leaves the body with the soul, and (especially note it) obeys the will with the lightning's flash and annihilates (if I may so express myself) time, space and matter, and is possessed with marvellous transcendental powers, passing from one part of the world—nay, it may be the universe—to another in a moment of time. In the spirit world there seems to be no time ; the soul lives under entirely different conditions—its motions are rapid. We measure time by the dial and the rising and setting of the sun. Time, as we call it, is but a measured portion of eternity ; the world, with its millions of ages in formation, is but a projection into it. One eternal now, that in the eternal mind comprehends the past, the present, and the future. Life is but a span. A million years and a moment are alike in the gulf of eternity. These thoughts stagger one when thinking of the possibilities and the powers of the human soul, which will go on unfolding, for life is but the threshold of existence, and our probation here the seed-time for eternity. Then, what are we sowing ? Reader, stop and think !

I have drifted a little from my subject, but cannot well help it, for if you throw out the ballast you must go off to the nearest world (planet) ; but to return to the question of the soul's environment. There are highly attenuated natures, exalted states of the nervous system, where the halo that surrounds the soul streams through the body. Baron Von Ruchenbach says it may be seen streaming from the hands, eyes and head, and in others the whole body is surrounded by a nimbus. This

may be seen by a sensitive when the subject is in a dark room. Just as the flames of a magnet may be seen streaming from its poles, not only affecting persons near, but those who are fifty miles or more distant when the thoughts of the mind are polarized. The Baron furnishes many examples in his work on ode magnetism. I will furnish a remarkable case known to myself.

The photograph of Mr. Joseph Ashman, of London, the medical rubber, is before me.* During his life I was in correspondence with him. I believe he exercised his gift and powers too freely—by imparting the vital force to his patients to the exhaustion of his own energies, thus shortening his days. I know sufferers who received great benefit from his treatment. He claimed to have no supernatural powers, but they were in perfect harmony with the more recent researches into natural science. It was only necessary for him to make a few passes down the arm to make the blood-vessels swell up as the blood rushed to the tips of the fingers. Around his hands in his photograph is a magnetic halo or nimbus. This is not perceptible to the natural eye apart from the photograph, but photography developes what the natural eye cannot see.

Explanation.—Lockyer, when photographing the sun's photosphere, did not detect any lines on the screen, but when the photographs were developed certain lines, not previously visible to the eye, but registered by the light, were seen. This discovery led to the wonderful science of spectrum analysis. Science makes the invisible visible in the highest and fullest sense. Our astronomers are furnished with splendid instruments. Hershel,in directing his great reflector on the milky way, saw as many as thirty thousand suns sparking like diamonds on the deep blue of heaven.

But by combining with these powerful instruments a photographic apparatus tens of thousands of bodies are registered that the human eye cannot detect. But photography does more. Persons impregnated with disease, though with apparently a clear face, yet, when the photograph is developed, spots will be discovered which are the precursors of disease, such as small-pox, measles, or otherwise; and this brings me to another matter. Every psychic has the power more or less to throw out or around him—and it can be expanded, contracted, or insulated at will—this halo or nimbus. When in this condition if the halo is photographed, whatever object in the invisible or under world comes within the radius of this halo is registered and depicted on the photographer's plate. I should not like to tell you what I have seen produced in this way by an amateur, simply because your minds are not prepared to receive it. The marvels that are to be unfolded in the next fifty years would stagger you. "There are more things in heaven and earth than we dream of in our philosophy."

After explaining to some extent the nature of the nimbus that surrounds the hands of Mr. Joseph Ashman. Is it any wonder or mystery that the blind referred to could describe colours, photos, and letter-press, by placing their hands on them? With a highly exalted

* See Psycopathy, or the True Healing Art, by Joseph Ashman. London: J. Burns, 15, Southampton Row, W.C.

nervous system (which, though separate from the odic nerve that surrounds the soul, yet plays in it, this also is important to be borne in mind) the halo streams from the face and the hands, which catch up impressions like letter-press, and through this subtle medium present them to the mind. We need not have recourse to superstition or miracle, the mystery is solved and the phenomenon, in a measure, explained. The soul drinks in impressions through other avenues when the external senses are sealed. The compensation for loss of external senses is so wonderfully adjusted in the provisions of divine providence, that it entrances our admiration and inspires our love.

I will now pass on to other experiences, kindred in their teachings, but not less startling in character. Having spoken of the form of the soul, its likeness and of the senses and their unity. I will now supply a few facts on the memory, the soul's registry, or the book of our life.

Before passing on to that part of the subject which treats of the memory, I may revert to the often put question "Will not the arguments deduced also apply to animals?" A very natural question and when put, instead of evading it, we should try and meet it with a satisfactory answer. It matters not what deep question we take up, we shall sure to be confronted earlier or later; then we are set thinking and instead of jumping to conclusions we have to contest every inch of ground in search of truth. When a young man I was very fond of Butler's Analogy. I wrote out the whole of the leading arguments in it, and with a friend, who is now a missionary in Bermuda, we went through the book together. On the question of the immortality of animals, Bishop Butler "says that animals may have a natural immortality peculiar to themselves, but not a moral and intellectual sensibility. The present economy of nature requires such creatures; we do not know what may be required in the next." Another writer on the same subject says that animals come more under the physical law (not moral law); they follow their dictates and cannot do wrong. But man, made in the inage of his Maker comes more under the moral law, and, therefore, he is responsible at the bar of a higher tribunal. My own conviction is that earth is full of heaven; that this world in its outward garb, which is transcient and fading, is but the outward manifestation of the more glorious light within. The underlying is the abiding, the unfading, and the eternal. All created things are the ideas and ideals of the Eternal, and these ideals are as eternal as himself.

It is said of animals that they are led by instinct, the migrating bird for example. The bird in building its nest and the bee in forming its cell on geometrical lines, never make any progress and rarely make mistakes. But man is gifted with reason and with hands (see note on Artificial Hands, Index) takes the materials provided in the fore knowledge of the Creator and makes them subservient to the highest ends. And now I will come to the Rev. Joseph Cook's Biology What of the immortality of instinct. A great distinction exists between those organisms that are automatic (I take it he means that it runs in certain groves on certain lines, instinctively as above) or have life, but no free will or conscience, and the higher animals, which have both the automatic and the influential nervous mechanism. The plant and automaton

have life, but not souls in the full sense of the word. But do not facts require us to hold that the immaterial part in animals, having higher than automatic endowments, is external to the nervous mechanism in them as well as in man. What are we to say if we find that straightforwardness may lead us to the conclusion that Agassiz was not unjustifiable when he affirmed, in the name of science, that the instinct may be immortal, and when he expressed in his own name the ardent hope that it might be. These, says the Rev. Joseph Cook, are the closing sentences of one of the most remarkable passages, in perhaps the most remarkable of his works—his "Essay on Classification." "Most of the arguments of philosophy in favour of the immortality of man equally apply to the permanency of the immaterial principle in other living beings. May I not add that a future life in which man would be deprived of—that great source of enjoyment and intellectual and moral improvement, which results from the contemplation of the harmonies of an organic world—would involve a lamentable loss? And may we not look, therefore, to a spiritual concert of combined worlds, and all their inhabitants in the presence of their Creator, as the highest conception of Paradise?"

Then is quoted Longfellow on the Fiftieth Birthday of Agassiz:—

It was seventy years ago,
  In the pleasant month of May,
I, the beautiful Pays de Vaud,
  A child in the cradle lay;
And Nature, the old nurse, took
The child upon her knee.

Come, wander with me, she said,
  Into regions yet untrod,
And read what is still unread
  In the manuscript of God.
And whenever the way seemed long,
  Or his heart began to fail,
She would sing a more wonderful song,
  Or tell a more marvellous tale.

What sings she now to this great soul which has passed into that Paradise of which the worthiest conception was that it should be a concert of the combined worlds? The lecturer then goes on to say one cannot but recollect in the sublimity of this passage that this man was born in the sight of the Alps, of French descent, of Swiss birth, of German education, of American activity. Agassiz is now of the house not made with hands; and so large was he that even when in the flesh he appeared by forecast to be a citizen not of America or of Europe, but of the supreme theocracy, in whose presence he hoped to see a concert of the combined worlds and all their inhabitants. Richter used to say that the interstellar spaces are the homes of souls.

Tennyson sings most subtly his trust:—

That nothing walk with aimless feet,
That not one life shall be destroyed,
Or cast as rubbish to the void
When God hath made the pile complete.
That not a worm is cloven in vain,
That not a moth with vain desire,
Is shrivelled in a fruitless fire.

In Memoriam, liii.

I think the opinions and expressions of these ever-living writers will be a sufficient answer to the question. Will not the arguments that apply to men in a certain sense apply to other creatures. I will now pass on to the subject of the memory.

Memory stamps our true identity and proves our individuality. The soul and mind, though separate, are one, and independent of the body or any material conditions. The body changes every three years—it may oftener; it was formerly said to change every seven. Though the body changes, the soul never does, though it may be developed, exalted, or debased. A friend of mine knows an old lady now one hundred and six years of age. She remembers that when four years of age a cow tossed her over a gate—her memory thus carrying her back to one hundred and two years ago. Now, she has lived in thirty-five different bodies, but she is satisfied that she is the same person. This incident is sufficient to show that the memory belongs to the unmaterial part of her nature, and the memory will follow the soul after death, when a more rapid dissolution of elements or particles will take place.

I know three or four persons, two of whom were patients, whose memories opened and their whole life passed before them replete, with every incident and its surroundings, in a few seconds of time. The first was a friend recovered from drowning. The second was the patient referred to in this book, who lost both his legs on board ship. While under-water on deck, extremely unconscious, and both legs off, the whole of his life from his boyhood was clear and vivid before him. The third case was a gentleman, a patient who had suffered for some years from spine and paralysis. It is important to mark the memory and the soul witnessing and echoing the same truth under entirely different conditions. The latter gentleman was a talented man, well educated, materialistic in his reasonings, yet generous and kind. During his illness he had read many high class works. The Bible he told me he had waded through five times; often to detect its seeming discrepencies, and not unfrequently using the missile that had been hurled at it by the scientific sceptics and agnostics—the high-class writers referred to. I was no match for him in argument. But he knew I was not to be argued out of my belief. His own after testimony will show that a man may be scientific, possess a towering intellect, the gift of learning, a giant in knowledge, with a subtle power of reasoning, and yet not hold the truth—in other words, "If ye have not charity, love to God, all knowledge (though it may be science falsely so-called), is as a sounding brass and a tinkling cymbal." On one of my later visits to him, he said I have experienced such a change since I last saw you. My whole life one day rushed upon me in a single moment of time. Every incident in it came up before me, and all the sins and follies of my youth. I never saw myself till now. I thought I knew a great deal, but I found I was ignorant, poor, blind, naked, corrupt from the crown of my head to the soul of my foot. The Bible, the book I have so often tried to refute, is the only solution to my difficulty. It has shown me how I may be cleansed, washed, and forgiven, and now I see the whole mystery of my affliction. I am now rich indeed. Well, I said, I am surprised, and what has wrought this wonderful change? Well, I will tell you. One day I was turning over my papers and I met with this

tract, which I have reserved for you, and written my name on, "The opinions of great men on the Bible." When the Spirit of God begins a genuine work on the soul, it makes short and sure work of it. It may be possible to resist the strivings and even quench the Spirit, but to yield is life everlasting, to stifle it is to lose all, for if ye neglect this opportunity there is no other Saviour from sin. This tract, he said, so awakened me that I read it over and over again, so that at last I yielded for I could hold out no longer. The medical doctor whose case I previously referred to had a similar experience. He came in one day from a walk tired, sat down in an easy chair, and suddenly went off into a kind of como or trance. His whole life with all his sins and follies passed before his mind in a single moment of time. On his recovery he was so overcome with his own heart's revealings and its depravity that he felt an unconquerable desire to preach the gospel, and point out to his fallen brethren the only remedy.

We learn from these cases, and they may be multiplied, that the memory is an unfailing registry, and is the book of every man's life. The conscience may be deadened or seared (for a time), but its intuitions which stamp the identity of the man can never be silenced. It is a tribunal and a divine law within him; thus the sentence is written within the man. This is remarkably illustrated in the life of Joseph's brethren. When they were cast into prison, though twenty-one years had rolled away conscience then became awakened (retribution). "They said one to another we are verily guilty concerning our brother." The law had not been delivered on Mount Sinia. The law was written within, they were a law unto themselves. This is a spark that stamps the soul with a divinity from which no man can escape. Do what he will man cannot run away from himself, nor escape the eye of the God who made him.

In gleaning these various facts one cannot escape from their teaching, to a mind conversant with natural and revealed truth, both will inevitably blend. The scientific materialist may follow on, so-called, scientific lines, but a lover of the truth cannot, it is impossible. Thus while writing on the opening of the mind the memory and the perceptive faculties, one is struck with that remarkable experience in the life and temptation of our Lord, when the devil took Him up into a high mountain and showed Him all the kingdoms of the world in a moment of time.

I have not yet made any reference to dreams as distinguished from other phenomenon; I now do so. It should be clearly understood that a dream is a very different thing to an open memory. Dreams generally occur in a kind of half sleep or between sleeping and waking. In sound sleep the mind and will is suspended and there is an extinction of all impressions. Dreams are automatic—that is the automatic arc has been so acted upon by the influential during the day, that it still goes on throwing off impressions of the work of the day, with a jumbling together of the surroundings or the converse which have been taken in consciously or unconsciously. The mind and will being suspended, the loom still goes on working without direction and thus the confusion worked out at times in the pattern or dream.

The impressions produced upon the automatic screen, if I may so express myself, generally vanish with the waking, but pictures of the memory are connected with acts and deeds done in the body and cleave to the possessor. To show that dreams are automatic, a bunch of flowers is placed near the nostrils of a dreamer; the aroma of the flowers arrange themselves in order and the dreamer is at once transplanted to a beautiful garden with all its natural surroundings; remove the flowers and place a bottle of hot-water at the feet and he finds himself transplanted to Mount Etna, walking over the burning lava. Ordinary dreams are different to those of the inspired prophets, where there is the opening of the higher or spiritual senses. There are ordinary and extraordinary dreams, and they partake of the character of a man's life—if impure his dreams are impure. If an engineer is perplexed with difficulties, his dreams will partake of the impressions of the day and work and he may solve some difficulty. If his life is true and devotional his dreams will assume the same character.

An example I will give.—Dr. Doddridge had been spending the evening with some friends, whose conversation had turned on the glory and happiness of heaven, and each had given his own thoughts and ideas on the subject. The doctor retired to rest, meditating on the theme they had discussed, and falling asleep dreamed that his earthly life was ended, and that when his spirit left the body it was borne by an angel through vast regions of space, on and on, till they reached the door of a splendid mansion, into which they entered. When the angel had bidden him wait till the Master came, he left him in a room where a banquet was prepared; the splendour of the place at first overpowered the doctor, but when he was somewhat accustomed to it, he looked around, and was astonished to find the walls covered with pictures representing the actions of his own life, and as he gazed he was still more wonderstruck to see how often he had been preserved in times of danger by the intervening of God's angels. On one occasion he saw that being thrown from his horse, he had only been saved by the outstretched arms of an angel from falling down a deep precipice, which fall must have killed him. While full of gratitude he was wondering at these things, the door of the apartment opened and the Master entered. The doctor turned to look at him, but when he saw the divine beauty of the face he fell at his feet as one dead, like the apostle of old; then He, who had entered, took from the table a bunch of grapes, and pressing their juice into a golden cup, gave him to drink, saying, "Drink, this is the new wine of my Father's kingdom," and when he had drunk his spirit revived and he was able to gaze into the face of Him whom he loved and worshipped, but what he saw there so stirred his whole being, that with the emotion Dr. Doddridge awoke, and, lo, it was a dream.

Let there also be a distinction made between dreaming and open spiritual vision, to which I shall presently refer. There is a state of clairvoyance where matter becomes transparent to the eye and the seer can look through. This is a power of sight different to the open vision of the dying and different to that described by Ruchenbach, where light was seen streaming from the eyes in a dark room. The eye is the light, or inlet of light to the soul, and it emits light under certain conditions; it is not surprising that such can read the *Times* newspaper in the dark.

In the foregoing facts and their inferences, reference has been made to a consciousness of the limbs after amputation, the form of the soul the plan of the soul and dual senses. The soul, the type of the man, the immortal principle that weaves the body, inasmuch as it can leave the body and return, and in its absence retain the knowing, seeing and thinking faculties. We have spoken of the environment of the soul in an odic (or magnetic) sphere, and this sphere always retains its unity with the soul during the bodily changes of renovation and decay, therefore, it is not atomic, though the atoms that build the body and the magnetic current, the cohering and distributing force plays through it. We have also noted the powers of the memory and the conscience, and will further endeavour to show that it does not end when the body has gone to decay.

And now it may not be altogether out of place to offer some few remarks on the clothing of the soul, and how it is clothed by this tabernacle the body. The suggestions I now throw out have as a natural sequence grown out of the facts already given, that the soul is the man, the type, the human form. That form though invisible to the natural eye (yet visible to the spiritual), is surrounded with an odic sphere, which permeates and surrounds the body, but is so attenuated that it is nearer the nerves. The nerves play in this odic fluid or ether, while the soul holds its connection with the body, and it extends beyond the body and surrounds it as a nimbus which can be depicted on a photographic plate. The light in which the soul is environed is veiled by the body, but streams through it under certain physical conditions. I may venture to say that "If angels are men in lighter clothing clad, and men or angels loaded, but for an hour," when the child of God is stripped of a gravitating body (and science points to this), he may become like unto the angel that came down and whose glory filled the earth. Nothing impossible. To return to the subject,—by this sphere that surrounds us we are drawn or repelled according to our positive or negative temperament. Having said this much which is a slight deviation from the thought that I wished to direct attention to, which is as follows:—

The food we eat is transformed into blood and held in solution to sustain the body. The nerves follow the arteries, and their minute terminations play in this environment or odic sphere. By marvellous cohesive powers, the particles held in solution are attracted, and they clothe the soul and build up the body, for matter has no form of itself, it clothes a form. A similar process goes on in the electric bath; the gold is held in solution; the article to be clothed with the precious metal is placed in the bath; whatever its form it is clothed with gold (or silver, as the case may be). The gold does not make the form, nor the battery and wires, nor the current, nor the force. They are only media for depositing matter on a form. Who made the form? The mind of the artizan. He moulds and fashions it as the potter moulds the clay, and in its plastic condition he can change the vessel and mould it into a more beautiful form, without taking from, or adding to it. The vessel was the artizan's ideal before he clothed it with matter and it became incarnate and prepared to be placed in a new element, to be clothed by another process with a richer robe. The poles of the battery play upon

the vessel, which is surrounded by an electric circle, the infinitely small particles that are held in solution are attracted and deposited and it is clothed and though the gold covering is become part of, it is not the vessel or type, because it had a form before it was clothed. By an analogous process the soul clothes itself with this body of nerves, fleshwork and fibre. But with this difference the vessel is clothed from without, the soul, formed on a plan, clothes itself from within ; "it evolves what has been involved by an inherent and divine power. Evolution is only equal to involution ; they are an eternal equation," it cannot evolve what has not been first put in. If I may so express myself, the etherieal form begins in the embryo life and clothes itself till birth ; the clothing goes on below our consciousness. After birth the soul carries on the process by taking the food into the mouth instead of being fed from the stomach, as when in embryo. The soul grows in stature, as a man in the capsule until the faculties, the reason, and the affections unfold, and when the soul, the man, has arrived at a mature age (if not previously liberated by disease or accident) the capsule splits and the man is liberated, death to him being birth into a new life, the threshold of real and intensified existence where all the faculties unfold untrammelled. The immortal principle goes out with the man, and if needs be, in the higher sphere, in the new element, it can clothe itself with another body that knows no renovation nor decay, and that according to the power imparted by the Creator, who can subdue all things unto himself. For we know, says the Apostle Paul, that if the earthly house of this tabernacle be dissolved, we have a building from God ; a house not made with hands ; eternal in the heavens. For verily in this we groan, longing to be clothed with our habitation, which is from heaven. Therefore, death is liberation from bondage and freedom to the trammelled soul.

I will close this section of my subject by giving a few instances where the departed have appeared to the dying and to survivors. Not long since I met an old lady who told me the following :—You knew my husband and his brother. I sat up with the latter in his last illness. Just before he died he was sitting up in bed and was fully conscious, when his face brightened up and he smiled. What is it, I said? Why there is my brother Ben at the foot of the bed looking at me ; then he sankback and expired. Ben had been dead fifty years, but his brother retained the same likeness and identity and he was still in his affections. He had come to the border-land of the new world to give his brother a welcome. I will now give an analogous case. There were two children in a family, a boy and girl ; they loved each other tenderly. The little girl died, which so affected the boy that some time after he was taken ill and died also. Just before his death he was sitting up in bed when his face suddenly beamed with delight, his eyes being steadily fixed, when he extended his arms and said "Oh, sissey" (or sister) and fell back and expired. When near death there is a suspension of the natural sense, the spirit being quickened as the last links are melting away; the veil that divides the spirit land from this becomes so thin and attenuated that the soul can see its beauties before it reaches the heavenly place. The little sister still loved her brother and she came to give him a welcome—our love outlives this poor frail mortality—just as friends welcome friends when they land on a foreign shore. When

we think of the love that never dies, and the love of Him in whom all love is centred, who bestows these wondrous powers and provisions, there is something so full of consolation in these touching incidents that death has no sting since He has removed it—it is only a shadow that hangs over the soul in its passage to a brighter world.

I might greatly multiply facts and phenomena, but I am giving the cases that have come more especially under my own observation and that of friends known to me. I will conclude this series by an incident in the life of Lord Brougham, as given in his autobiography. He was from home and taking a bath, when, to his astonishment, he look around and saw an old college friend sitting on the chair on which he had deposited his clothes looking at him. The vision gave him such a shock that he had no inclination to talk much about it, but the impression made was so vivid as not to be easily forgotten. It appears in their college days they discussed the question of the immortality of the soul and a future state. They then made a compact, and wrote it in their own blood, that which ever should die first should appear to the other and solve the doubts they had entertained of the life after death. His Lordship was so affected that he put down the date—the 19th December —with all particulars. Sixty years had elapsed since the time of the compact entered into, and he had almost forgotten it. On his return from Edinburgh there arrived a letter from India announcing the death of his friend, and that G—— died on the 19th December.

"I could not discharge from my mind," says Lord Brougham, "the impression that G—— must have died, and his appearance was to be received by me as a proof of a future state." What are the inferences? That the soul is the man—that it has the same form and identity as the body, but that, freed from a gravitating body, it could pass with a flash of thought from India to Edinburgh in a single moment of time. Whilst sitting on the chair in the bath-room at Edinburgh the body it had just left was in India. The thinking, seeing and knowing faculties, and the power of memory, however go out with the soul—the man—and he is now come to fulfil his compact which he is mindful of having entered into. Lord Brougham's bath-room door is locked—don't forget what has been said about the spiritual limbs going through a wall after amputation, and the experience of the medical doctor who found himself in the room of his lover; do not take one isolated fact, but take the whole as they are presented, so that they may help you to arrive at some definite conclusion. There is another thought connected with Lord Brougham's case. The messenger finds him instantly, though far from his own home, and he is singled out from the teeming millions of the human race. This we may partly comprehend from the fact that a telegraph message can be sent to almost any part of the world and the individual for whom it is intended is selected out from amongst the hundreds of millions of the human race, and it becomes a special message to that person. But there are other lines on which messages and messengers travel. The soul has only to be liberated from the trammels of the clay and it is over intervening seas and lands instantly. Of the lines of transit we know but little—we can only note the facts. It is computed that if an electric cable circled the earth the time it would take a current to make the circuit and return to the point from whence

it started would only be half a second, and if by a perfect apparatus, branching from one centre, a number of lines reached to all parts of the world the receivers would all receive a message at the same moment of time—so that the sender would, in a sense, be omnipresent to each at the same instant. There are lines that reach to the Throne of the Eternal, and He is omnipresent, in the highest sense, to every soul who turns his heart heavenward. Think you God has endowed His creatures with these powers and not reserved the same for Himself. A prayer brings the angel Gabriel, (the messenger that always stands before the Throne), to earth in an instant. How lines of science blend and help us by these parallels to understand revealed truth.

The following is a striking example of the human voice being heard thousands of miles without our present telephonic apparatus :—

"A Plymouth correspondent says a strange incident is reported in that town. On Tuesday evening a young man residing at Devonport, called upon the editor of a local paper and begged to be informed if any telegrams had been received giving the names of Englishmen killed during the day in Alexandria. He was informed that no such message had been received. He thereupon mentioned that during the afternoon the mother and wife of a petty officer named Rivington, serving in Alexandria, had what they considered a token of his death. They were sitting together in their house, talking and working, when they heard, or thought they heard, the voice of the absent son and husband say "Mother!" three times. With forebodings upon them, the brother was at once despatched to the nearest office, with the result indicated. On Wednesday, however, the relatives of Mr. Rivington received a telegram from the Admiralty to the effect that he was shot in the streets of Alexandria on Tuesday, whilst serving on police duty."

It was said at the time of the bombardment of Alexandria that the booming of the cannon could be heard through the telephone at a distance of a thousand miles. Since then the Americans have so improved the telephone that the human voice can be heard at a distance of a thousand miles ; see how quickly and how near souls are brought together, though a thousand miles lie between them. But the communication from Rivington was heard and received thousands of miles distant without the telephone or our present recognised electric apparatus. This fact does not stand alone, there are others of a similar nature on record, and we can but accept them as we accept other testimonies verified in a similar way, though we cannot explain the *modus operandi*. There is a medium of communication between mind and mind without our present electric system.

Then there is another matter to which I would refer before closing this section of my subject—the opening not only of the memory but the vision. In the cases given, where the dying have seen their departed loved ones waiting to give the welcome, the change has not taken place in the invisible surroundings, but in the sight of the dying, as in the case of Stephen—he saw Jesus and the angels above him ; and in the case of the servant of Elisha—his servant could not see the hosts of the Lord (they were more than his visible enemies, the Assyrians—the emissaries and agents of the devil), and Elisha prayed that his servant's eyes might be opened, and when the natural vision was suspended and

the spiritual eyes opened he saw the mountain full of horses and chariots and the hosts of the Lord. And here I leave you until I come to the third part of my subject, the facts of which are of a different order, but not less impressive.

By way of reference I will now give a few extracts from the researches of other writers.

To this section of my subject I will add a few notes from the writings of the Rev. Joseph Cook, the Boston lecturer, who is one of the most intelligent and clearest reasoners of the age. In his biology there is a remarkable lecture on the "Spiritual Body." The research of Herman Ulrici, professor of philosophy in the University of Halle. In the lecture he goes on to show that the weaving of this wondrous framework lies beyond the physical framework, living organism being woven by something not itself. Quoting from Professor Beale, he says, "That the force which weaves these tissues must be separate from the body, and it is very plainly not the result of the action of physical agents."

It is Ulrici's view that the soul is the occupant of a nonatomic ether that fills the whole form and lies beyond the mysterious weaving of the tissues. This nonatomic fluid is continuous with itself. Its chief centre of force is in the brain, but it extends outwards from the centre and permeates the whole atomic structure of the body. These statements are in perfect harmony with the phenomena connected with the facts I have given, with their inductive teaching Take the nimbus round the hands, the medical doctor's experience and many others, for which I cannot find space. "Just as a summer's lightning blazes through the cloud so the soul blazes through the spiritual body, which is finer than the nervous tissue and finer than electricity." I would here remark, these statements are in perfect harmony with Ruchenbach's discoveries. By way of illustration—there are times when this light is manifested and experienced, especially to the dying, as the physical is being thrown off and the spiritual quickened. I know of an elderly lady, who, sometime before her death, in the darkness of night would see her room filled with and be herself surrounded by glorious light, and experiencing lightness and joy inexpressible. A similar instance was that of the late Dr. Wilson Fox, and given in the *Lancet* obituary. "On the next morning, when obviously and consciously dying, and after his eyes had been fixed a few minutes on the angle of the room, and as some grey streaks of dawn were entering it, he said, suddenly, 'There is a great light—a great glare of light. . . . I feel so strange. . . . . A glare of light.' 'What is it, Reynolds?' The reply was 'It is the peace of God.' He grasped his friend's hand and said 'God bless you.'" To me this is the quickening of the soul and the glorious dawning of the heavenly world upon the spiritual vision. In my own experience, if I place myself in the psychical condition, I can see in the dark light dawn upon the vision—just like that of a planet on the field of a telescope before it enters the field.

To return to the lecturer. He says, "The soul is an occupant of this ethereal environment; it operates in part unconsciously and in part consciously; it co-operates with the vital force; it is not identical with that force." "Hermann Lotze takes great pains, as well as Ulrici, to show that it is not necessary to think of the immaterial principle as

identical with what has been called the vital force. That which moves these bioplists and causes them to build on a plan, kept in view from the first and maintained as a unit to the last, we say must be an adequate cause of these motions, and that it is not the vital force simply, although it may be the vital force with this outer vital psychical force behind it; and yet the two are always to be carefully distinguished from each other."

"It is the morphological agent which weaves all living tissues—it spins nerves; it weaves muscles, the tendons, the eyes, the brain – it arranges each part in harmony with all other parts of the organism. When it rises into a state of consciousness it produces the phenomena known as thought, imagination, emotion and will." "The soul, entering into the spiritual body, takes to itself clothing and builds visible matter upon invisible." "The plan of man's organism does not change from the first quickening until he drops into the grave. Nevertheless, all the particles of the body which are changing our sense of identity still persist. The cause of our sense of personal identity must be something that is not in perpetual change. The plan that does not change implies the existence of a man of substance though invisible." "It becomes clear, therefore, that even in that state of existence which succeeds death the soul may have a spiritual body." "What! You are preaching to us the book called the Holy Word." "Yes, I am," says the lecturer, "and here is a page of it with a spiritual body. This is a phrase we did not expect to hear in the name of science. It is the latest whisper of science, and ages ago it was the word of revelation. The existence of that body preserves the memories acquired during the life in the flesh. If this ethereal nonatomic environment of the soul be interpreted to mean what the Scriptures mean by a spiritual body, in distinction from a natural body, there is entire harmony between the latest results of science and the inspired doctrine of the Resurrection. . . . "When the Bible speaks of a spiritual body it does not imply that the soul is material, it does not teach materialism at all, it simply implies that the soul has a glorified environment which will accompany it in the next world. I believe that it is a distinct biblical doctrine that there is a spiritual body and a natural body, and that the former has extraordinary powers, which apparently makes nothing of passing through what we call ordinary matter. Our Lord had that body after his Resurrection when he appeared suddenly in the midst of his disciples, although the door was shut." My limited space will not allow me to give more examples. I recommend you to read the book, it is the best answer to the materialism of the age. Before closing the subject, I will direct your attention to some extracts from an article, by the same writer, on "Julius Müller and the Resurrection." "It is conceded that neither electricity, nor magnetism, nor heat, nor any physical force with which we are acquainted, explains what we call soul. But we are conscious of our existence. We know that if from the rest of the flesh we dissolve out the nerves as a white ghost, there is something finer than they behind them, namely, the nervous influence. If we dissolve out all the bioplists, and hold them up here in their natural position, there is certainly something finer behind them all, namely, the force which cordinates them. If we take all the bioplists there are in the body, and

hold them up here, the cluster of germinal points would have in some sense the human form, but it would not be the finest thing in the man. There is an influence behind the bioplist or co-ordinating power, arranging the growth of the whole body. If it were here in the air, you could not touch it. If you could pass your hand through it, you would not feel it; and yet you know it is there. But the nerves themselves were woven by the bioplist. Take out the bioplist. Let them retain their co-ordinating power, you know such a power is there. Take the co-ordinating power out. Hold it up here, you cannot see it, you cannot touch it, but it is there.

It is an accepted conclusion with Julius Müller that the finest thing of all, or the co-ordinating force, which we know exists in the physical organism, is the true body. It takes on this poor fleshy envelope, as a hand puts on a glove. What if by and by it puts on a resurrection body as another glove? Julius Müller in a passage of great incisiveness says it is not the *sarx*, the mass of earthly material, but the *soma*, the organic whole to which the Scriptures promise a resurrection. The organism as the living form which appropriates matter to itself is the true body, which in its glorification becomes the *soma penumaticon*. The Scriptures teach that the soul between death and the resurrection remains unclothed. This language is forty years old and represents truly the orthodox view of the resurrection. If I am to follow Julius Müller, I must regard the true body and the resurrection body as two things. But they are related to each other much as the true body and the body of flesh now are, that is, as hand and glove. The true body is the organic force which correlates all the parts of the flesh it assumes for the clothing of the physical tissues. We drop at death all that is corruptable or gross, but the *somo* the organic whole as Julius Müller calls the correlating force, continues to exist. In these points he is not denying at all the assertion of Scriptures that there will be perfect identity between the resurrection body, and the body laid down at death. The Scriptures assert the sameness between the body which we bury, and the body which is raised, they do not teach in what the sameness consists. What Julius Müller teaches is, that in the resurrection body the organic principle of the present body clothes itself again. There are two definitions of sameness—chemical identity and organic identity—Julius Müller does not assert chemical identity between the present body and the resurrection body. He asserts organic identity. Three things are to be distinguished from each other—the present body of flesh, the present organic principle or spiritual body (if we please to use that phrase), and the resurrection body. Consider these apart from each other, and you will not be confused when you read Ulrici's views of the spiritual body in connection with Julius Müller's views. The organic principle and the resurrection body are not the same thing, any more than the hand and the glove are the same, or any more than the *sarx* and the *soma* are the same. Julius Müller's teaching is far from that of Swedenborg. There is nothing in the creed of the Church against the doctrine of a spiritual body as now existing in us, and as an organic principle which will ultimately assume a resurrection body. This is the doctrine which

Julius Müller derives from the scriptural assurance that there is a spiritual and a natural body. That is now and here we have a natural body, and now and here we have a spiritual body. . . . . "I will defy any man," says the Rev. Joseph Cook, "to find any conflict between the scientific doctrine of the spiritual body and the biblical on the same point." You will see, reader, this is a rational solution to some of the difficulties that have been raised on this question. I do not pretend to vie with these talented writers—I am simply an observer. The book I published 17 years ago and the articles more recently—of which this is an abridgment—go to show that the man is an organic whole apart from his natural body—that the soul is the man, that he has a spiritual body now within him which leaves this tabernacle at death, just as the sword leaves the scabbard. In recording the facts I record no new thing—they have been patent to observers in all ages. I have simply collected them and given their inductive teachings. We cannot escape from the voice of the facts; to me their teachings are clear, but I have no wish to force them on others. I find men of large research coming to the same conclusions, and who gather their knowledge from different sources, so that natural science and biblical teaching are one.

In concluding this part of my subject, it may be considered a departure, but it has grown out of the foregoing question. Not alittle has been said just now on creed making. A Primitive Methodist, a few weeks ago, writing to the *Christian World*, draws up a basis of belief. He says, "I stay in the Denomination, while yet I hold the broader theology, because I think I am justified in making a distinction between the substance and the literary form of doctrine. Paul distinguishes between "the letter and the spirit" in the law of his day. I think I may follow his example in regard to doctrinal statement, taking the doctrines of the *connection seriatim*." The new theology men believe in is the resurrection of the dead, both of the just and the unjust; this is accepted. I think we hold it as he expressed it more fully than our so-called orthodox brethren. They contend for the resurrection of the body, we for that of the man. In arguing for the continuity of the life beyond the grave we think we hold to what is the substance of the doctrine of the Resurrection, and besides we escape the hundred difficulties which science pronounces against the resurrection of the body. I will here add that the resurrection of our Lord is the key stone of the gospel arch. If He has not risen our faith is vain and we are yet in our sins. As to the mystery that surrounds the resurrection we know comparatively little; His incarnation, life, death and resurrection are unique; all we can deal with are the facts, and these are incontestible, and based on the clearest testimony.

And here I would make another reference to that marvellous chapter of Paul's—the 15th chapter of the first epistle to the Corinthians, beginning at the — verse. "Thou fool, that which thou sowest is not quickened except it die; and that which thou sowest thou sowest not that body that shall be, but grain, it may chance of wheat or some other grain, but God giveth it a body as it hath pleased him and to every seed his own body." The best definition I have ever read of this verse and in perfect harmony with inferences and teaching set forth, is as follows :—

"To bear the proper analogy with the seed, a man should be buried alive as the grain of wheat with his life principle in him. Instead of that we bury the body" (the life principle, the organic whole, is gone out of the body to be clothed upon with its house, which is from above). Some have the impression that there is a germ in the body buried, and that it will rise out of the earth, which means of the earth, earthy or chemical identity, all things are possible to God, but is it consistent with the underlying spiritual teaching? When is a man sown? When he is born into this world, then he is sown in this earth, as wheat in the soil; as soon as he begins to live he begins to die; he goes on developing until the soul is developed in the capsule (unless liberated by premature death) at maturity, when capsule or body can hold him no longer it splits (as the body of wheat in the earth) and lets the spiritual man free to rise, the capsule being left to decay. To follow up the analogy. In the grain or the nut there is the outer shell, within is the nut, the true body, and within it the life principle. When the spirit leaves the man more than a spirit leaves him—an organic whole, a spiritual body goes out of the natural body—otherwise how shall a rich man converse with Abraham, or Abraham with a rich man, or a Moses and Elias with our Lord and Peter and John, to which we shall make reference in the next section of this subject, and we shall there see that they pass out of the body at death as men with the full compliment of the senses, and they express themselves through an individual personality.

PART II.

I will now direct attention to the second part of my subject—the Sceptical and Biblical. I have taken the sceptical first, because there are so many materialists and agnostics around us, who believe neither in the scriptures nor a future state. Believers in the Bible do not stand in need of testimony, such as I may offer, but there are others who shut out the light and know comparatively nothing of the truth, and don't care to know, yet they may be open to listen to an argument on a question affecting their highest interests. Some have been arrested and led to think, and if a writer can by stern facts once lay hold of the judgment, then it is possible to reach the heart. Further, the book contemplated, of which this is an abridgment, if I may so express myself, is a natural and philosophical protest against the sceptism and materialism of the age. Some time ago I met a gentleman who read my first little work. He was an agnostic, he did not believe in anything and there are many just as indifferent. The facts of your book, he said, were so novel and striking to me and so convincing that they completely wheeled me round, and if you will publish the book again I will purchase ten pounds' worth for distribution. I believe there are many in the same position oscillating, as it were, between certainty and uncertainty. I was in company with a gentleman who expressed himself thus on the secular reading of the day: "I regret that I should ever have read so much of the high-class literature of the present age; there is a subtlety with it that unsettles one and makes it difficult and uncertain what to believe." My belief is this: Let men take the simple truth, as it is revealed in God's word, believe it and live it, then there will be rest. Not a few sceptics may come in contact with this synopsis so I will give a few sketches of some of whom I have come in contact with. After I have shown their views, beliefs, or negations, I will turn to the scriptural aspect of this question of a future life. In sketching these characters they will furnish examples of many. Further, I am not giving the experiences of others, but my own, so that as a simple observer my statements are independent of what others have written or noticed.

There are men who have made splendid contributions to science, who neither believe in the soul, God, or Satan. I shall bear testimony to all three. I know several gentlemen who views are agnostic, they do not know and do not care to know. They say God is unknown and unknowable, yet they are men of intellect and good social position. I have one such before my mind—a man of culture and science—I have had several conversations with him, but could make no impression upon him, his eyes and mind seemed closed to the most telling evidences. One day, whilst in his presence, a dear little child, with a bright and happy face, ran and looked up to him and scampered off again. I said how about bringing up that dear child in your belief. He coolly said what does it matter? What can you do with a heartless man like that? Where is the culture and the intelligence? Yet in the nineteenth century there are numbers of splendidly educated men gone off themselves and leading

others off the track. What is the use of arguing with some scientists, or trying to light the candle whilst the extinguisher is on? Another example.—I was waiting for a train at Yeovil station; on looking at the scripture roll that hangs over the mantelpiece, under one of the most precious portions of God's word, some person had written with a pencil "That's another lie." It was under that text the Rev. C. Spurgeon took for his 2,000th sermon, "And by His stripes we are healed." When men do this kind of thing there is generally something wrong in their life, the Bible does not suit them, in fact the signs of the times indicate that there is a lawless spirit abroad in the world. Another example I will give is that of a scientific materialist and electrician. Electricity to some of these gentlemen is life itself, rather than a medium through which thought expresses itself. When I say materialist I do not mean to speak in a disrespectful sense, as many of them in their social positions are gentlemanly, respectful, and as far as intellectual culture goes, well bred. Whilst lecturing on electricity he sends the electric current through different media producing different effects; through one it is light, another heat, another sound and another motion, &c., then through various chemical tubes producing varieties of light. The whole subject of the evening was molecular motion and force, force, force; or, in fact, that God is force. I said, what is the man talking about? He seems to lose sight of himself and the mind that is behind all these forces which he arrested from their course and made obey his bidding, so that they became his servants, which should lead up to the great mind that made all, knows all and controls all, for "there is no such thing as thought without a thinker." No, but to some of these gentlemen, mind is the result of chemical action, produced by molecular motion or a concourse of atoms, and when the atoms and elements are dissolved, it means annihilation, for to them a soul is all nonsense. Force to them is in the sun; certainly Stephenson was right when he said sunlight drove the engine that carried the train along; the light was bottled up in the coals ages ago to be turned into fuel for man's use. But who made the engine and the tender? Force, of course; it did not make itself. There are four things, says Dr. Carpenter, a machine cannot utter, I am, I ought, I can, I will; but man utters them. Here is another example.—The gentleman is a scientist of good social position in conversation with him; he makes reference to Christianity and said it did very well for its time; now men are advancing and growing up to a true ideal of what they ought to be. Men of science are developing a natural religion that will meet the needs of humanity; as to believing all the scriptures say, and of one Jesus Christ who came into the world in the way he did, and died and rose, and was seen about after his resurrection, who believes that nonsense? How many there are who deny our Lord and Saviour; they say His incarnation is an impossibility opposed to natural law. But natural law may, and is superseded without violation; naturalists tell us that queen bees give birth to their young without the male, if this can happen in nature surely the Creator of the bee can prepare a body for himself to manifest himself through. What is an established fact in the kingdom of nature can happen in the kingdom of grace when God has a special purpose to serve. This is by no means the only example furnished by naturalists.

I have just finished reading Dr. Cunningham Geikie's, "Life of Christ." This work surpasses in sublimity of teaching and force of truth, anything that I have previously read. His introduction, the opinions of great men on Jesus Christ, is most affecting and touchingly beautiful.

Let an unprejudiced reader in search of truth read this work, and note the facts of the book. The history of the world at the time of our Lord, and before his appearing. Note his surroundings, work and teaching—begin at the end and trace back his earthly life's history (apart from his pre-existence and divinity), begin with his ascension, his appearance after his resurrection, his death and resurrection, and then back to his birth, the prophecies concerning it, and the incidents that surround it, and there will be no difficulty in accepting the truth of his incarnation, though shrouded in mystery. His mission to this world was for a most merciful and loving purpose—"For he was made manifest that he might destroy the works of the devil," and rescue man by providing a way of escape from the grasp of the destroyer. Surely he is our hope; and those who deny and reject him seem, on thoughtful reflection, to commit nothing short of soul suicide and this in the name of science.

The scientists referred to are some of the lights of the nineteenth century. They try to remove the landmark out of its place. But the unfortunate part of the business is this, they give us nothing in its place. Are they going to show us a more excellent way? Nay, they leave us to drift. But where? What do they give us—for bread a stone, for a fish a serpent, and the end of their journey is the antipodes to Jacob's ladder, the pit.

Take Darwin an excellent man of science, he is not favourable to Christianity, and he has a strong aversion to poetry and music, he has so concentrated his energies on physical science, to the neglect of his moral and spiritual attributes that he attributes this dislike to atrophy of part of his brain, brought on by excessive concentration and study. I fear there are a good many suffering from the same complaint. It is said "that he who has no soul for song or music is fit for treason." It reminds me of a sermon of Horace Bushnells, where he speaks of the fish that live in the dark Kentucky caves, they correspond to the fish in other waters near, but have no eyes, they have either fallen out or become closed from disuse. So if men refuse to use their moral and spiritual powers, they also grow feeble by disuse and ultimately die out, but who is responsible? This reminds me of a vision in which the seer saw one of the great heathen philosophers sitting by a stream thinking. The philosopher was nearly all head, being of huge proportions, but the limbs were shrivelled, and the chest so contracted that there was no room for the heart. Now to become a man of due proportions, the head must not be cultivated at the expense of the heart, and the higher spiritual powers. A heart with large sympathies and a mind well balanced makes the man. If the heart and moral nature is neglected a man may be anything, and even go to the opposite extreme of the scientists. If in Power he may become like Alexander the Great, Napoleon or Nero. The first after the conquest of the world was said to weep because there was not another world to

conquer. The second dreamt of war and bloodshed, and believed that men were made for carnage and slaughter, and that manufactures flourished merely to supply the materials for war. The latter began by pulling off the legs of flies, and finished up by chopping off people's heads. At one time there were so many captives to be executed, and he was so tired of the bloody work, that he wished they had one neck that the executioner might strike them off at one blow.

To revert again to the materialistic scientists, one able writer has thus put it, not with a view to undervalue any assistance they have rendered to science, but to show their status. "Science invents new theories of the Universe which contemptuously ignore the existence of any God. Moralists establish theories of ethics and social life, in which the non-existence of a future life is taken for granted. In physics, in psychology, in law, in medicine, the one thing needful in order to entitle any teacher to a hearing, is that no reference, whatever should be contained in his ideas, either to a Providence or to a soul." Not long since I saw an account where the members of a Friendly Society or Brotherhood on the continent proposed eliminating God from their dispensation.

"It was when France decreed that she was without a God, and she would have none; when she inscribed upon her tombstones and upon the gates of her sepulchres, death—an eternal sleep; when she hunted Christians into the dens of the earth—it was just then her blood flowed like a river, and the guillotine rested not night or day. Everything that was kind and generous in the human heart withered away, and everything that was selfish, base and cruel, grew rank and flourished. The tenderest relations of life lost their sacredness." The religion of the Bible--the Christianity that would embrace the world in its arms—is the only safeguard of the nations. What this negation of God and the soul has done for one nation it can do for another if not checked. The word of eternal truth alone meets man's need and supplies the remedy.

The Scriptures do not argue the existence of a God, but simply state the fact "That in the beginning God created the heavens and the earth." To negative this statement is impossible. It is a most difficult thing to prove a negative; to do so a man must be first in a position to comprehend all knowledge—nay, must possess infinite knowledge. This, as a finite creature, he does not possess, for "There are a thousand actions at the threshold of his own door of which he knows nothing." A supreme Being, the Creator of all, and the Sustainer of all, is an absolute necessity. In the regions of science, architecture and mechanics there are hundreds of illustrations where the works of men correspond with the works of the Creator—framed and made upon the same plan and worked out by the same laws, which shew that there is a connection between the mind of man and that of God, demonstrating most clearly that God is a co-operator with man and that we are His offspring. Some will not see this; worldly wisdom knows not God, and with perversity of mind men shut their eyes to such teachings. Nevertheless, whilst they are going on with their discoveries they are made to do God's work, so that the discoveries in modern science and inventions, in engineering and mechanics, are

breaking down all obstacles, tunnelling the mountains, bridging the seas, levelling the hills, exalting the valleys, girdling the world, and thus preparing a high way for the Lord, for it is computed that so rapid is the march of science that before the close of the present century the gospel will be placed within the reach of every human creature—for He must reign until He has subdued all things and put all enemies of the gospel under his feet. In conclusion let me say that men in all ages of the world, especially amongst the more enlightened of their race, have had an instinctive and intuitive sense of a God. Man must have something to worship. Like the ivy, it must cling to something, and if it has not some stately tree to climb it will run along the earth and cling to rubbish, sticks, or stones. In the early ages of the world the Hindoos and others, though idolators, evinced a longing and seeking for a God—even in heathen darkness they must worship something. There was the instinctive longing, the reaching out of the soul, until the glorious light of the Truth came to scatter the darkness; so that in the earlier ages God did not leave Himself without witness, and in these latter times he has revealed Himself through His Son. Nothwithstanding the evidences, there is in some men's hearts an innate perversity, inasmuch that they are like a man who sits on the floor, folds his legs and arms, and is determined not to move, until he becomes like the Hindoo. After a time should he wish to move he cannot—his limbs have become set and anchylosed. What is true of the body is true of the perverse mind and will.

Man is a terrible being; he is a kind of deity. God does not force Himself upon Him; He has endowed him with the freedom of choice, so that he can say yes or no; so that man can stand and say no to his Maker. The whole secret lies, then, in the depravity and perversity of the human heart, in the depravity of his moral nature. "The fool hath said in his heart there is no God." But before I pass on there is just one other thought. Materialistic scientists are not the only ones, there is another class who believe in a God, the immortality of the soul, and the devil. They are the covetous, money-grabbing class. We cannot do without money, it is an instrument of good, and coinage is a wonderful provision; but when men worship the almighty dollar, and add house to house, and field to field, to the exclusion of all other claims, then I don't know which is the worst, the former or latter. One thing is certain, if they, with others, reject the truth they break the same moral law and share a similar fate. This is a teaching that will not suit them and they will not accept it. So much for materialism. We do not believe that we were evolved from the sea-slime—the lichen or the tadpole—neither that we originally emerged from a cloud, nor at some time we shall evaporate into one. Go to the death-bed of a dying man and offer him this scientific religion. Talk to him about molecular motion and a God force. Will it meet his need as he stands on the verge of the eternal world? Let your own soul witness and answer the question.

I will now pass to some of the evidences of the Bible before I draw the parallels intended, and thus set forth the ground on which I take my stand.

Some time ago a gentleman came to see me; he quietly seated himself and, after pausing a few seconds, said I am come expressly to see you and to ask you two questions: The first question is, how do you know you have a soul? And the second is, how do you know the Bible is true? I said certainly they are two pertinent questions and of course you expect straight answers. First let me say it is easier to ask ten questions than it is to reply to one. I can answer you to my own satisfaction, but whether my answers will satisfy you that I cannot say. To your first question, how do I know I have a soul? I place my hand upon my heart and say the answer is here; I have the witness within. In reply to your second question, how do I know the Bible is true? It is the only book that meets my need and satisfies the cravings of my immortal nature. Very good, was the reply, but what other testimony can you furnish in favour of the book. I was at once put upon my metal, and as I was not altogether ignorant of the evidences, I answered something after the following—it may not be in precisely the same words, but I was equal to the occasion. I here give the answers before quoting in favour of facts and their inductive teachings. First—the Bible contains its own evidence. Second—it has escaped the ravages of time, and survived in spite of all the agencies that have been employed to extirpate it. Other books may have survived, but no other has had to contend against the continuous persecutions the Bible has. Third—we could not know God without a revelation. Holy men, or men set apart, wrote as they were inspired by the Holy Spirit; had they written their own thoughts, over a period of so many hundreds of years, the Bible would have been one book of contradictions from beginning to end; but it was written through the media of differently constituted minds and under different conditions, and although the writings partake of the colouring and temperament of the writers, they all wrote the same grand underlying truth which proves that the whole work is of one mind and spirit. Thus the discrepancies and colouring, which some carp at, are easily accounted for as not affecting the underlying truth and teaching. It is the letter that killeth and the underlying spirit of truth that giveth life. Fourth—it is the only faithful book ever written. Men, when they write their autobiographies, or the biographies of others, never tell us their secret sins or their hidden life, but the Bible holds up the man and gives you his open life and his secret sins. Fifth—a good man, apart from the Spirit's teachings, could not have written the book; a bad man would not write a book that would condemn him to death; the devil dare not write it, for a house divided against itself cannot stand; so only He could write it who made man and knew what was in him. Sixth—the Bible is the only book that has brought life and immortality to life. Seventh—the Bible, of all other books in the world, is the only one that shows how a man purged in sin, may be cleansed and forgiven and so renewed that he may live and dwell in the presence of a pure and holy God. Rev. T. Binney's hymn "Eternal light" may well come in here. A few months ago I met at Weymouth the gentleman who put the questions to me. I asked him if he remembered calling on me some years ago. He replied yes, and I well remember your answers; and now let me tell you something: your old pastor, Rev. E——, was the only man that ever spoke

to me about my eternal interest and to reach me. One morning he invited me to breakfast, and that interview ultimately led to a decision for Christ.

There is one other question which has not been unfrequently put to me which I will give and then turn to the subject of this section. What do we know about God and the future life? Nothing, without a revelation. We could not possibly know about a being who is infinite, omnipotent, eternal and incomprehensible, who dwells in light inaccessible to finite creatures, unless he condescended to reveal himself. What he is in the abstract we know not, but he has come down to our level; He is in touch with us; He has revealed himself in the person of His Son, who is the brightness of His Father's glory and the express image of his person, who, being in the form of God, thought it not robbery to be equal to God, but made Himself of no reputation and took upon Himself the form of a servant and was made in the likeness of man. I will not pretend to interpret the underlying truth of this wonderful passage, but let it be interpreted by other references to follow and we shall see that, though no one can define the divine being, yet he has made himself intelligible. The arguments and testimonies put forward may be thought a deviation from the general course. They are the best evidences I can offer in favour of the scriptures and to which I will now direct attention, especially those portions that touch upon God and Man, the immortality of the soul and the future life, and in considering the various portions we shall see that from their teachings death takes nothing from that immortal part that constitutes the man, and that after death he possesses form (not necessarily material, yet perfectly natural), individuality, identity, memory, conscience and a full compliment of all the senses—that of seeing, speaking and hearing; that he is, in fact, an organic whole apart from the body (not organic in the sense of renovation or decay), but as one perfect intelligence, one individuality, one entity and unity.

First, we will consider man's origin, in contradistinction to the scientist, who says he emerged from a cloud, a lichen, or a succession of creatures, the names of which I fear to mention. Why not come direct to the revealed word of God. What more beautiful definition can we have than that given by the Creator Himself, "And God said let us make man in our image," &c. "So God created man in His own image, in the image of God created He him, male and female created He them." "And the Lord God formed man of the dust of the ground and breathed into his nostrils the breath of life, and man became a living soul." We learn from this that man was created by a special act of God; he was not evolved or transmuted, for there is an eternal law that puts an end to the transmutation theory. Naturalists have proved that all hybrids are sterile, and thus there is an impassable barrier. Man is stamped with the impress of his Maker, the Great Original. Please not lose sight of the words form, image, likeness, in their different relationships to God and man. "God created man in His own image and likeness." This may be taken in a two-fold sense. First, his moral image, holiness, purity, righteousness; this is expressed through a personality (and though defaced in the fall is restored in Christ). "Man is made after

the similitude of God." "We are His offspring," therefore, like unto our parent. We come from God, we rise to God, our original. No creature can rise higher than the orginal. God reveals Himself as possessing the attributes of human beings—as seeing, hearing, speaking and loving. "He that made the eye shall he not see, He that made the ear shall He not hear." Seeing and hearing lie deeper than the corporal sense. "Organisation does not prove everything," there is something that lies deeper still and is beyond comprehension. We cannot give to God corporal parts in the natural sense, for in the abstract He is beyond our comprehension. We may see His power and wisdom in nature, but we can know nothing of His love, His mind and will, outside Jesus Christ, who is the revealer of the Father. Jesus Christ assumed the human form before His incarnation, yet free from human limitations. The highest ideal and conception of God is man. Thus man is God's masterpiece. Before the incarnation Christ assumed the true type, the glorified form in the angel of the covenant—when He ascended in the flame of the altar, when he appeared as the fourth in the midst of the fiery furnace—"and the form of the fourth is like the Son of God." In prophetic vision when Isaiah saw the Lord high and lifted up and His train filled the temple. He assumed the human form in His incarnation, He retained it after His resurrection and ascension, when Stephen and Paul saw Him as one born out of due time. He spoke to Paul from the heavens and reminded him that in persecuting His brethren he was persecuting Him. In His converse He did not forget His earthly life and His dwelling at Nazareth. Last of all John, who was in the spirit, saw Him in Patmos in His glorified, divine, and human aspect. When he fell at His feet as dead and He laid His hand upon me, says John,saying "fear not, I am the first and the last, and the living one and was dead and behold I am alive for evermore, and I have the keys of death and hades." Where is the scientist who can give from his research such a stream of beautiful teaching ; where is the boasted and more excellent teaching than that laid down in revealed truth. Our Lord (God manifest in the flesh, the divine ideal) assumed the human form before His incarnation, when in the flesh, after His resurrection, and after His ascension He assumed that true type, after which man was made—I mean in the fullest, highest and deepest sense, the underlying teaching, "Let us make man in our image," after our likeness ; "I made thee and formed thee from the womb." "We shall be like unto Him." "I shall be satisfied when I awake in Thy likeness." His moral image, but this must be expressed in and through a personality. Thus likeness, image and form express a two-fold sense. Shut these out from the mind and there is a complete blank, nothing short of annihilation, the mind cannot conceive nothing and the soul cannot endure the thought of extinction or annihilation. This bring us to the question of the form, the image, the likeness and personality of the (soul) man after death. Moses and Elias appeared to Peter, John, and our Lord on the Mount of Transfiguration. They were men in their primeval manhood—they were glorified beings with form, image, and likeness. They possessed bodies not necessarily corporeal, for flesh and blood cannot enter the Kingdom of God (Moses left the world centuries before Elisha), they

know no age renovation or decay. They are men stamped with their own individuality and identity, or they would not have been distinguishable one from the other. They are men in full possession of all their faculties, nothing of their essential being is wanting. They have a knowledge of the past, present and future, for they talk with our Lord about his decease, which is to take place at Jerusalem. Place the facts as taught here, and those set forth in the first section of this article and what do they teach? That the facts of natural science are parallel with those of the Bible, and the clear teaching of that is that there is a natural body and a spiritual one—a body within a body, with the full compliment of the man.

There is another thought suggested to the mind by the transfiguration of our Lord, and in drawing the parallels let it not be said that "I venture were angels fear to tread." Reference was made in the former part of this synopsis to the odic light that environed the soul, and although its manifestation is below the range of natural vision, yet in certain exalted states of the nervous system it may be seen under certain conditions, streaming forth as a nimbus or halo from all parts of the body, Ruchenbach proved this and so has more modern research. Man in a lesser degree is like unto his Maker and endowed with similar powers. The light of the glory that was revealed in the flesh streams through his corporeal frame, and our Lord transfigured before them. Further, after death the children of God are like unto the angels. As when John was overcome with the presence and glory of the angel, he was told by him that he was one of his brethren. I believe that sudden death to a child of God is sudden glory in the fullest and highest sense, and, if this capsule (the body) was removed, we should shine as the light. Now I will turn to another fact and experience in our Lord's history, that of His appearance to His brethren after His Resurrection. With the mystery that surrounds it, I have nothing to do; great is the mystery of godliness, I have simply to deal with facts and their teachings. He appeared and disappeared suddenly. And on two occasions when the disciples were in the upper room at Jerusalem, the door being locked, he appeared in their midst and conversed with them, and said handle and see I am the same Jesus. I repeat again, "Stone walls do not a prison make nor iron bars a cage." But we may bear in mind the spiritual and underlying teaching, the eternal realities, these must be spiritually discerned. We must remember that Christ did not reveal himself to the world, but only to the brethren, and where there is real affinity and spiritual discernment. There is such a thing as spiritual touch, sight and hearing, and this deep seated consciousness lies deeper than the nervous system, is far more intensified and deeper seated, than natural touch, seeing and hearing. This I have made reference to in the selection of my facts, and their inductive teaching. Now note the parallel teaching, the spiritual arm can be put through a wall after the amputation of the natural. The medical doctor can come through the wall of his lover's room when locked. Lord Brougham's college friend passes through the walls of the bath-room, and sits on the chair and looks at him, hereby revealing himself to one in affinity. Departed friends—examples of two out of thousands of similar cases—as in the case of Ben and his little sister, who were in the room waiting

to give a welcome to their dying loved ones. I repeat again, they are only seen by those in affinity. Further, when the disciples recognised our Lord at Emaus, He vanished, and they hastened to Jerusalem. Our Lord made his exit suddenly and was there suddenly and as quick as themselves. The exit from India was sudden in the case of the college friend. You note this: that man is endowed, in a limited degree, with powers and capabilities like his Maker. If we are God's offspring, which He declares we are, we must bear the impress of our Maker, and, in a limited sense, be like unto Him—sons of God; and in one portion of Holy Writ it is said "Ye are Gods." We know comparatively little of our true nature; we are here in this capsule (the body), in a kind of chrysalis condition; there are marvellous innate powers yet to be unfolded. "What we shall be it doth not yet appear." We are here reminded of the words of Sir Isaac Newton, who compared all his knowledge and research to a child sitting on the sea-beach diverting himself with a prettier pebble or shell than usual, but the mighty ocean of truth lies undiscovered and stretched out before him. When we think of the possibilities of the human soul, and the Divine Being who endowed it and made it so large that He alone can fill it, "we are overcome with the grandeur of the thought." We now and then get foregleams of that which is beyond our present comprehension—"we look through a glass darkly."

To return more immediately to the subject of the soul and man's existence after death. There is the parable of the rich man and Lazarus—"Short biographies of three men in the eternal world." Abraham, who has left the world centuries before, is here represented as a man with the full compliment of all the faculties of man. He sees the rich man across the gulf in Hades, and he converses with him who has just entered the spirit world, and quotes Moses and the prophets. Moses and the prophets lived and passed away long after Abraham left the world, yet Abraham is conversant with their history, in fact in the spirit world they are Abraham's companions. The rich man dies and he is buried, but nothing is taken from him that constitutes a man—he sees, speaks and hears; speaking, seeing and hearing lying deeper than the corporeal sense, for his natural body is in the grave. He possesses the power of memory, he remembers his earthly life, his father's house and his brethren. Do not forget what I said about open memories and man's whole life rushing upon him. "Son remember"—this was an awful reminder of mis-spent time and lost opportunities. The memory is the soul's registry. What does it teach? That the soul is the man and the seat of the affections, and within the soul there is the sting of conscience which is as a scorching fire. Then there is Lazarus in this earth life with decrepid body and full of sores and deformed; but this does not affect the soul, when the trammels are removed he is at peace and comforted. These characters are awful realities.

Then there is another lesson taught by our Lord, which comes home with equal force. It is His reply to the Sadducees, who were the materialists of that age. They did not believe in angels, spirits, or the resurrection from the dead. There were seven brethren who had one wife, "and last of all the woman died also. Therefore in the resur-

rection whose wife shall she be of the seven, for they all had her. Jesus answered and said unto them, ye do err not knowing the scriptures, nor the power of God, for in the resurrection they neither marry, nor are given in marriage, but are as the angels of God in heaven. But as touching the resurrection of the dead: Have ye not read that which was spoken unto you by God saying, I am the God of Abraham, and the God of Isaac, and the God of Jacob. God is not the God of the dead, but of the living" Thus Abraham, Isaac and Jacob are living, they are not dead, they are only dead to us. What we vulgarly call death does not make a breach in our existence ; death is not a spiritual or mental change, it is only a physical one, and if a man is not changed before death, morally and spiritually, he is not changed after. Do not deceive yourself, reader, and fancy it will be all-right by and bye, and that God is going to perform a miracle in your case, for the Scriptures declare there is no change in a man's moral and mental nature after death (if anything, I lean to Universalism, but I have no warrant for it from the Scriptures) and the change can only take place in this life, " for he that is holy shall be holy still ; and he that is filthy, filthy still ; and he that is dishonest, dishonest still ; and if a liar, a liar still." " Be not deceived, God is not mocked, for whatsoever a man soweth that shall he also reap." One of the most powerful and impressive sermons I ever read on this portion of truth was by the Rev. E. Robertson, of Brighton. Before concluding this section of my subject, let me say that the soul impaired by sin can be repaired. A remedy and a screen has been provided that shall close over the memory of all evil, our transgressions may be blotted out as a cloud, and our sins as a thick cloud, be not imputed to us, but forgiven, forgotten, and remembered no more for ever. This a merciful provision, which no other religion or gospel, but the word of God, offers.

PART III.

I am now come to the third part of my subject—my psychical experience. Before I enter upon it I will direct your attention to another class of facts, which, I believe, have to do with quite a different order of intelligent beings ; they are neither human nor angelic, yet they appear to assume human form, having powers analogous to other intelligences, though theirs' is a mundane life. If they are not what I have represented them to be, they are souls that have departed this life, and instead of ascending to the higher and holier spheres they have gravitated, if I may so express myself, to the lower plains of existence.

In treating this occult science, I will be as clear as possible, considering the mystery that surrounds it. I will treat it on physiological and psychical known laws, and thus, if possible, try to make myself intelligible. But let it be clearly understood that this side of psychology has nothing, whatever, to do with the first part of my subject, though some of the phenomena may appear anologous and parallel. When I wrote my book "The Seat of the Soul," I knew nothing of the matter on which I am now about to write, and furthermore I had arrived at something like a knowledge of the truth before I began to investigate psychology or publish. Thus I have been led to my present knowledge step by step. While here in this world we are denizens of other worlds —Heaven and Hades. Good and evil angels are around us ; "the Angels of the Lord are encamped round about us and very near to those that fear Him." But the emissaries of Satan are also numerous and ready to ensnare the unwatchful and prayerless ; even the children of God in their unguarded moments may be caught in the meshes of his net. Open vision may reveal either world, but there is an impassable gulf between the high, holy and true and the evil, sinful and lost states.

Satan is a mighty intelligence, fallen from his first estate. His feats of legerdemain are such that he can assume the form of an angel of light and so practice deception, as almost to deceive God's very elect. He is the head of the principalities and powers of darkness ; principalities, government, parliament with a cabinet, ambassadors and emissaries, they are sent throughout this lower sphere. Where is he not ? Why he will even get up in the pulpit and preach if it will serve his purpose, and this I will endeavour to prove before I finish with this section of my subject. If one has not the power of discrimination, it is possible to confound the work of the enemy with that of the Holy Spirit, for he will, if possible, try and run on parallel lines for the purpose of deceiving. This part of my subject may be a digression from the two previous sections of this abridgment, but not less important. In entering upon it I will try and raise the beacon light to warn others.

To come at once to my subject the late Mr. Serjeant Cox, Deputy Judge at Clerkenwell, the well-known newspaper king, was the first to introduce me into this Arcanen. One of his favourite studies was Psychology. He met with my first work on the soul and was in frequent

correspondence with me. On an invitation from him I met him in London. On my first introduction he said "Your little book is the most wonderful I have read"; a compliment from a literary man. In his last work on the Mechanism of Man "What am I?" he devotes some eight pages of review to my book. In a more recent article on the subject, he styles me the "Chard Natural Philosopher," to which, of course, I modestly bow.

On my first interview with him he gave me some of the results of his research in connection with some well-known scientific gentlemen, whose names I need not mention; he also took me to a séance to see the phenomena. Here let me say that there are certain natures that are psychical—that is, they can evolve this nerve atmosphere or odic circle, of which I have said so much in my first section, when one or more meet for experiment they notice certain phenomena that are not manifest under ordinary conditions. Unseen intelligences, I believe of a lower order, when they come within these odic circles, which range below natural vision, can produce most astounding phenomena, of which, in my limited space, I cannot give a tithe. For example, Mr. Serjeant Cox informed me that at one of the sittings a hand-bell was taken up and rung, no visible hand being near it. He asked that the bell might be handed to him; it is passed through the air to him and as it is delivered he feels the fingers of the hand that delivers it, but cannot see them. He now makes a request that the hand, that delivered the bell, may take his pocket book from his side pocket; he feels it drawing out the book, but he cannot see it; and as the book floats in mid-air, the law of gravitation to all appearance seems suspended, he makes a grasp at the book and catches the hand by the wrist that holds it, when it gradually melts in his grasp and the book falls on the table. So there are invisible forces and intelligent powers that seem to supersede the law of gravitation. To supersede is no violation of the law. If the book on this table falls off and before it reaches the ground I quickly put my hand under and catch it, it is no violation of law. I mention this because persons talk such nonsense sometimes and say it is not according to law, &c., &c,, and they forget that law is simply the divine mode of action, that one law may be superseded by another higher or by some intervention. The mystery remains until the law or *modus operandi* is discovered. At another sitting his eye glasses were pulled off from around his neck (these experiments took place in the day). In this case the hand (and the hand only) made itself visible. It was that of a small female which he caught hold off, but there was no female present. Mr. Serjeant Cox's theory is this, that the soul can leave the body of the Psychic within certain limits (like the soul of the Medical Doctor in my first section), and perform certain feats. Thus he names this occult science Psychic force (or soul force). He is the originator of that term. In reference to the latter manifestation (and it is only one out of hundreds), I am sure (he says) that I was in my perfect senses (as a judge constantly in the habit of sifting evidence, he was not likely to be easily deceived). The hand is that of a female, but there is none present so it could not be the soul of the Psychic, and we must look for a solution elsewhere.

You will not be surprised reader after this at Mr. Serjeant Cox being enamoured of my book on the form of the soul, and the existence of the invisible hands and legs after amputation of the natural. To him it was a confirmation of his theory. Novel as the facts are they are gathered from an entirely different source to Mr. Serjeant Cox's. Here let me say that there are invisible intelligences of a lower order, who possess human form, and that when they are induced to come within the sphere of the Psychic can appropriate to themselves the exaltations and floating elements around them and clothe themselves in your presence, this can only be done however where there is a seeking and permission. The odic sphere which is an invisible nimbus extending it may be yards in radius round the body is the wall of fire that God in his wisdom has placed around us to preserve us from the incursions of the enemy, but if we open instead of isolating ourselves we let in the enemy. This I will prove to demonstration on a perfectly natural and scientific basis, and this after I have fairly prepared the reader for it.

But to refer again to the hands. The one Mr. Serjeant Cox saw and felt belongs to a very different order of being, to the one that was seen writing on the walls of Belshazzar's Palace. When he with his Lord and his concubines was defiling the sacred vessels of gold his father had taken from Solomon's Temple at the seige of Jerusalem. Here is a spiritual hand leaving a material impression, an awful warning "Mene, Mene, Tekel, Upharsin," Daniel v, 25, 26, 27, 28. We are told by Herodotus that at this moment Babylon fell and that Syrus who beseiged the city finding the walls inpregnable, cut another channel for the river that flowed through it, marched his armies up the old bed of the river and took the city, thus the mighty Babylon fell, the splendour of whose ruins is but the shadow of what they once were. So of all nations that forget God.

Now mark there are three different orders of hands, in each case belonging to intelligent beings of different orders for the hand directed by intelligence is the servant or instrument of the mind (see index, hands). The hand felt after amputation is the human one and belongs to the organic whole (the spiritual body). The hand writing on the wall of the King's palace is that of the recording angel sent from the Eternal Throne with the message. But the hand that handled the bell and pulled the eye-glasses off Mr. Serjeant Cox's neck was that of an emissary of the enemy of all righteousness though unwittingly taken for the psychic. Mark the three different orders of intelligence as there are some who will draw the parallels and tell you there is no difference, and herein lies the subtlety, without the power of discrimination there is deception.

But above all there is another hand not necessarily corporeal but Divine, and the prayers of men can move the heart, that moves the arm, that moves the hand, that moves the Universe; and for us it is a mercy that He reigns and rules, and sways his sceptre over heaven, earth and hades.

On my last interview with Mr. Serjeant Cox his confidence in his psychic force theory was completely shaken, my own experience having bewildered him, and he expressed himself thus to me in his chambers at the Temple: "I begin to feel and believe that many of these manifesta-

tions have nothing to do with the psychic or departed souls, but they have to do with another race of beings who never were of this earth." This was his conviction, though such a statement may never have been published by him.

Similar manifestations that took place under Mr. Sarjeant Cox's observation also occurred under the scrutiny and investigation of the German philosophers. Impressions of human hands and feet were left on vessels filled with common flour and smoked paper. The experiments were carried on in the light of day and under the most crucial tests. Where did the impression of the feet come from which were stamped like a die on the flour? and when smoothed over appeared again. All the gentlemen present having their boots on, trickery was impossible. Their names are as follows; but before giving them note that there are invisible beings having human form, and when they come within the sphere or odic circle of the psychic they can make a material impression. As to their order, I believe they are fallen and inferior beings, and I will presently give my reasons for so believing. These phenomena tend to prove that there are invisible organised beings of a different order to man. There is an analogy here that goes to strengthen my deductions from the facts I gave in my first article—that there is a spiritual organic whole (a spiritual invisible being) that goes out of this tabernacle after death. Whether these are disembodied souls is an open question. The manifestations referred to took place in the presence of some of the most distinguished scientific men in Germany, and are as follows:—Professor Zollner, Professor of Physical Astronomy at Leipsic University; Professor Fichte, Professor of Philosophy at the University of Tubingen; Professor Fechner, Professor of Physics; Professor Scheibner, Professor of Mathematics; Professor Ulrici, Professor of Philosophy; Professor Weber, Professor of Electricity; and others. The experiments and effects are published and lithographed in a book by Professor Zollner, entitled "Transcendental Physics," and translated into English by Mr. Gerald Massey. The Rev. Joseph Cook, to whose writings I have previously referred, wrote, some few years ago at length, in the *Christian Age* on these Transcendental Physics, which I have read. Since then I believe a work has been published by him on the above subject, in which he says that these manifestations are a death-blow to German materialism, and further hints that there is such a thing as demonology, as set forth in the sacred writings. My space will not allow me to notice further these experiments and manifestations, which are accounted for by the German philosophers as a fourth dimension in space. What this means I cannot at present comprehend.

You may well understand, reader, how stirring all these experiments were to me, having written, as I had, on the soul. I pursued their investigation without knowing anything of their true nature, but only just noticing the facts and analogous manifestations corroborating my own deductions, as I believed they were impressions left by departed souls who were once of this earth. I do not now say that some of them are not; but I do say that these manifestations have nothing to do with those who have gone to heaven or to the higher and holier state.

In accordance with my then belief I published a second book, entitled "What I saw; what I heard; what I think." I regret in one sense

that I should have published it; not that I wish to ignore the facts, but for want of power of discrimination I mistook the work of the enemy for that of departed friends. Pardon me for my open and frank acknowledgment. I am not the only one, by many, that has discovered his mistakes and acknowledged them. The work of the enemy is here mistaken for that of the spirit, and herein lies the subtlety of the whole thing; thus the unlawfulness and danger of research.

In investigating this occult science a careful analysis of the subject is necessary, so that one class of phenomena may not be mistaken and confounded with another, and this cannot be done without careful study and actual experience; you may see effects and facts, but the thing is to trace them to their causes. All kinds of wild and speculative solutions are deduced to account for the phenomena referred to. I will take the negative side and endeavour to show what they are not. First, they do not belong to mere subjective phenomena, produced by delirium, delusion, excitement, or imagination; they are not impressions produced by mesmerism or biology as ordinarily understood; nor are they delusions of an objective character produced by scientific apparatus, reflection and optics, such as used by well-known and popular professors of leger-demain, as introduced by Sir David Brewster, Professor Pepper and Mr. Walker, the latter's apparatus for producing objective delusions surpassing all others. I will now come to my own psychical experience, which is but one phase of the phenomena of which we have only touched the threshold.

There were two ladies on a visit to some friends of mine. They were, what is termed by Mr. Serjeant Cox, psychographers—that is, automatic, or soul writers. They would take pen or pencil, remain perfectly passive, suspend the mind, make no will effort, then a power, external to themselves, would move the hand to write, draw or paint, as the case might be. The hand would write out intelligent answers to questions put mentally or orally. This exercise can be called into power at any moment and under almost any circumstances. When there is no pen or pencil at hand the index finger is made to serve the same purpose so that it will write on a table or on the atmosphere, the mind following the characters as they are formed.

They had given up the practice, but hearing I was interested they gave me an invitation and several sittings. It became a subject of the most intense interest to me. The object of my research was truth and, I believe, was in perfect accord with some of the facts and teachings of scripture, so we began by reading a lesson from the same.

The first message written out was as follows :—"You have a great many enemies around you, but they have to keep at a distance, not being able to stand the radiance of the light." Messages of a remarkable character followed, some personal ones referring to the psychics and friends in the circle and attended with warnings, &c. At the second meeting I asked the controlling intelligence if I was psychical, "Yes, was the reply, you are already so." What am I to do, I asked, that I may develope the gift? Reply.—"When you retire to your own room for quiet, take the pencil and wait until the power comes." This I did; I took the pencil, remained passive, the mind and will were suspended, when a power soon began to move my arm and hand, and the pencil

started, passing from one side of the sheet of paper to the other, making eddies like fringe work. I was satisfied the power had come, but of its real nature I knew nothing. It was a sorry day for me when I took the pencil, as it forced my investigations beyond the bounds of legitimate inquiry. I had not long possessed the power, when I became very anxious to get rid of it ; but before I was aware of it I found myslef caught in the meshes of a net from which I could not at once extricate myself ; I was completely beguiled and trapped by the enemy. I did not discover this at first, for all went on smoothly. The character of the scribbling soon altered from eddies to that of drawing ; the pencil began to sketch the human eye and its orbit ; an eye in one corner of the orbit, then in another, then looking up, then down to represent the rolling of the eye, then the eye-ball started from its socket as if straining every effort to see. It was secured to the latter by a long spiral nerve, which stretched to its full length, when it could go no further it began to elongate until at last the pupil started from the eye-ball and continued to elongate in its effort to see. At intervals for a week the hand would draw nothing, but the eye elongated. At last I said to myself what is the use, I will give it up. When I asked mentally for a communication my hand then wrote the first intelligent message, $orry Error "—the letter S made like the sign for an American dollar ; the pencil would do nothing but continually run over these words. Well, I said to myself, what does it mean ? An answer was at once written out, "The eye of God is upon you." I now became worried a little. The teaching was clear enough ; I could see it after but not at the time, as a kind of fascination and infatuation drew a veil over my sight (this is not surprising, for I was where I had no business to be—in the enemy's country). So I continued at times to use the pencil. The hand began to write fluently and rapidly. A long list of names were given of friends I had known, who had all passed over to the great majority—the list was headed by a play-fellow I was very fond of. They all assured me of their presence, and to testify to their identity would give facts and incidents that happened during their life—the locality and surroundings as evidence.

What further testimony did I need than this, and now to be in the very presence of loved ones, talking with them, with only a thin veil between, was a verification of my previous researches. Sometimes I would question some of the statements made, and the sharp, shrewd answers I received were most remarkable. At one time I had an impression that the matter could be explained within myself, but the intelligence perceived my mental thought and dodged me in this way, "won ti eveileb uoy od." I tried to decipher the message but could not. When they found that I was beaten another message is written, "Read the communication backwards," when I found it read thus, "Do you believe it now." Can you conceive anything clearer to convince one ? I now began to seek guidance on the matter ; that if it was right to continue my reseaches I should do so, but if not I desired a thorough manifestation to the contrary. You may naturally ask, reader, how are these communications established and through what media do they come ? Professor Bell's latest discovery on the telephone will serve as a striking analogy to help you, and it will give you a natural and

philosophical as well as psychical answer to the question. You may see by this analogy, when conditions are established, that intelligence can flow into the mind and soul by influx. If a ship trails behind it a wire attached to a dynamo on board, electric action, sufficient to influence a telephone, is set up in a circle round the ship of which the wire is the radius. Thus, if the wire be one mile or five miles long, the ship sails in an electric circle two miles in diameter and three in circumference, or ten miles in diameter and fifteen in circumference. If another ship, with a dynamo on board, and also having a wire trailing, comes within the electric circle and they touch one another at any point, whether two or ten miles distant, the captain of one ship can talk to the captain of the other by telephone. This is analogous to the law operating in the invisible world, especially in the under-world. I have said a great deal about the environment of the soul in odic light, which extends far beyond the radius of the human body. It is that circle that permeates the body and follows the soul after death. If I may so express myself, these spheres are analogous to electric circles that surround embodied and disembodied spirits. When we open ourselves and seek communication, as soon as the electric or odic circle of one intelligence overlaps that of an invisible one communication is established, as by telephone, and we talk to each other. This is a scientific illustration, which I will more clearly demonstrate when I speak of the functions of the brain. But note, the psychic can insulate himself at will and at any moment, and cut off the communication; he has a sovereignty which God has given him, "Resist the Devil and he shall flee from you"; and it is only as the will is given up or kept in abeyance or suspended, that the communications come (unless the mind is gone). The soul is imbued with light which drives back the incursions of the enemy, or lets him in if opened. To return to my experience everything went on smoothly for a short time. The writing was so fascinating that I was drawn in deeper and deeper. My mind inwardly saw what I could not see externally and wrote out "Grieve not the Spirit," "Quench not the Spirit." To have done this knowingly would have been pain. But I was by forcing my investigations doing it ignorantly. I now met with a work by Clara Field, exposing the subtlety and danger of investigation. In this book are excellent addresses said to be from departed friends which proved to be addresses by the enemy and his emissaries. This is the first outward sign of warning I next received a letter of warning from G. H. Pember, M.A., of Budleigh Salterton, who had heard of my researches in this occult science. He has published a book on the subject, "Earth's Earliest Ages," a clever and remarkable treatise on the tactics of the enemy. But what really awakened me was T. L. Harris's remarkable book, "Millennial Age," and a course of lectures delivered by him before the Marylebone Institution, London. Now the next thing I had to do was to put these intelligences to the test and bring them to the truth. They are put to test by bring them to 1st John iv, 2, 3, "Every spirit that confesseth that Jesus Christ is come in the flesh is of God: And every spirit that confesseth not that Jesus Christ is come in the flesh is not of God." This turned the whole current. Those that assumed and personified friends now became enemies. I was never so taken aback

and confounded. But you may say how about the evidences and the clear testimony given by the friends. Herein lies the secret and subtlety of the thing. When you suspend the mind and the influential arc through which Divine light comes, you throw open the automatic arc to the play of the enemy, the innermost registry of the memory being open, and from that registry any of the facts of the life and their surroundings can be copied and sent back through the hand. I will say more on this presently, this is the subtlety of the enemy to deceive. His is a mighty intelligence and he has more in his little finger than you or I have in our whole body. But to return to my experience, my assumed friends now became deadly enemies. My difficulties in working my position in business were of no ordinary character. My trials as an inventor were still greater, but this experience was the greatest trial of my life. I said little or nothing about it in my own circle, in fact, they are still ignorant of my experiences. I followed my business just the same ; friends remarked that I was ill and physical frame sinking. I had only two to confide in, that was a friend and my doctor. When he visited me I was in bed ; I could not bear the sound of a footstep nor of a voice ; what would happen to my physical frame I could not say ; I found the nervous force was streaming away from me rapidly, but as to my mental condition I held my own. I never lost my self-possession, neither was I terrified nor frightened ; I knew that He who knew all about me and to whom I had committed my purpose could see that I was trapped and I felt He would stand by me ; just as he did by the Hebrew children, who were taken captive and led by enemies to their country, and when the emissaries of the Devil put them in the fire, a fourth like unto the Son of Man walked in their midst. God kept His promise with them, though in an enemy's country and He kept His word with me and I am now out of the dilemma, and I may say, though I suffered mentally, I am not scorched, neither do I smell of the fire. And now to go back to my experience. As soon as the emissaries of the enemy found I detected their subtlety, I found that I came in contact with two classes of intelligence—when I say contact, I do not mean close proximity like a wrestler, though this may happen in some cases, but when their spheres touch then there is an influx of the one into the other, as in the analogous illustration of the two captains on board the ships, they speak to each other through two electric circles overlapping or touching, but they are two (or ten) miles distant, this being according to the radius of the (odic or) electric circle. Abraham spoke to the rich man, but there was not only a gulf between them, but there was also one between the rich man and his brethren.

The two classes of intelligence I came in contact with were those who had rejected the truth in this world, and the emissaries of the enemy. You may ask me if I believe this? Yes, most emphatically, and you may ask did a communication ever come from the heavenly sphere? Never ; neither do I believe there has ever been one permitted to come in this way, and through these media, though thousands of volumes as well as periodicals have been published, to try and prove it. By this kind of communication a psychic suspends the influential arc, the mind, the reason, and the reflection, the channels through which God speaks ; by this suspension they exclude God, quench the light, grieve and quench

the Spirit, then they open the automatic arc on which the enemy can play any imposture he likes, just as easily as an expert can play on the key-board of a piano. This I will presently explain more clearly and illustrate how by the discoveries made on the functions of the brain in vivisection. I must ask your forbearance, as I continually go off the track to explain. The subject is so vast that I take this course so that I may make myself intelligible. I will now revert to the two orders of intelligence. First.—Those who have rejected the truth and are lost. They see now too late that they have missed their opportunity, that there is no Saviour, and they pray and call upon the Lord for mercy, but the door is shut against them and not a gleam of hope. This was a very painful part of my experience. It would be one's greater joy to direct a lost and seeking soul to a Saviour in this world, and all are in this condition who are undecided and reject the truth ; they are lost now, but do not realise it. They are the same individuals when they have put off the body, with the same affections ; then there is a mental anguish over opportunities spurned and lost ; death does not extinguish the faculties, but quickens and opens them. Over my experience I shall draw a veil—it is too painful to bear. Mr. Serjeant Cox made a request to me and hoped I should never publish it, but the facts I cannot withhold. I now touch upon the two fold question. First, to warn those who are living without Christ and salvation, for, if God's appointed means are missed, there is no other Saviour for sin. Second, to deter others from going beyond the legitimate bounds of inquiry ; to withhold my experience when I know tens of thousands are being unwittingly ensnared, would be to withhold the beacon light that may save some from shipwreck.

Some years ago I followed the discussion between Rev. E. White and Rev. A. Jukes, on the destruction of the unregenerate and universalism, while the former tried to prove that the wicked would be utterly destroyed and become extinct, the latter tried to prove that out of destruction came life. I lean if anything to the latter view, but can find no authority for either in the Word of God. As to the lost, those who have rejected Christ, their state is not one of annihilation but of endless misery. As to the heathen who have never heard His name there may be a hope, "For as many as have sinned without law, are a law unto themselves," and are judged accordingly. But for the open rejecters of salvation there is not a gleam of hope.

And now, reader, you may not wish to be preached to, but I feel a kind of intense anguish for souls. If we all really felt the power of the Truth we should run and lay hold of our friends and neighbours as we see them blindly walking towards the edge of a precipice, over which is a bottomless abyss, to which some are inevitably going ; and once over they are ever falling, never rising. It is an awful thought—outer darkness ! I shall never forget some years ago going into a midday meeting at Exeter. Lieutenant Hay and another officer addressed the meeting. There was a large and influential congregation. The former spoke with great force and power. There are two classes, he said, "the righteous and the ungodly." Those of you out of Christ belong to the ungodly. How many ladies and gentlemen in this assembly are on the side of the ungodly. You may not be guilty of any flagrant sin, your lives may be

strictly moral, but your morality will not save you. "All have sinned and come short of the glory of God." You all need changing. You may be well educated, possess wealth, hold good social position and be gifted with talents; in your homes you are all that can be desired, courteous, gentle, kind, but you are without Christ, therefore you belong to the ungodly, and if you die thus your home will be with the lost, and your companions will be those in whose company you would not be seen in this life. Why sacrifice your eternal interests for the fashions and pleasures of the world. When God in his love stretches out his arms to save you, and He is more ready to give you his Holy Spirit if you will ask for it, than you are ready to give bread to a perishing friend. Reader, if you knew what I know you would not risk your eternal interest another moment, but hasten to the rescue. A high order of intelligence and cultivation is no guarantee for eternal life; cultivation and reformation are not regeneration—"Ye must be born again. There are educated lost souls of all grades in the eternal world, and there are plenty of educated devils in this; and as death is not a mental change they pass into the next world with their attainments, which are lost to them because not consecrated to the glory of God, and they are only reckoned as stubble.

While I was passing through my painful experience I left home to see a gentleman, who had been an investigator for years, to see if he could help me. On my way I broke my journey and called upon another, who had equally large experience. He was himself a psychic. On explaining the nature of my trial, he bid me not to be alarmed. I sat down, when he placed a large sheet of paper on the table, then my hand began writing and answering him. I would give anything, he said, if I possessed your gift. What is your temperament? Sympathetic. That is it. You have opened yourself and these poor creatures have come to you for sympathy. That I believe. Then he related some remarkable experiences, which I withhold.

I left and continued my journey to see the gentlemen I set out purposely to see. He gave the same solution to my difficulty—these hopeless ones come to you for sympathy; one would not be unkind to them in this life, and one cannot help feeling now. As the large sheets of white paper (foolscap) were placed on the table they were written over in answer to the questions, and were followed by a touching prayer of the deepest anguish; when that was finished the whole of the letters (large round hand) were embroidered. As the letters were being embroidered the gentleman (with friends present) was struck with admiration, and exclaimed that, with one exception, is the most beautiful phase of psychography I have ever seen, the other being that of a lady. Be not alarmed, you ought to be proud of your gift. You must understand, reader, I could cut myself off from this thing at any moment; they had no control over me except when I submitted myself, but the writing was so awfully fascinating, notwithstanding the painful experience, that the difficulty was to leave the thing alone.

However, I came home when my illness came on; I had not now to do with those who came for sympathy, but with the enemy. His sheet lightning seemed let loose on me; as I repelled him with one portion of God's word, he would quote another; and so the fight continued for

days. He knows all about the Bible—he quoted it to our Lord when he took Him on the pinnacle of presumption. I fought hard with the sword of the truth ; the enemy used a similar weapon. The difference between mine and his was that he used the sword of the letter, I used that of the Spirit If I had not been on the Lord's side before I was trapped, it is a question if ever I should have got out of the dilemma. However, the enemy was quelled and I still held the power and could insulate myself from the communications. But I used the pencil at times automatically for several years, not for communication, but for the purpose for watching the automatic action of the soul and spirit (or mind) for in this experience there is a clear marked line between the two, though they are met with together and at times are synonymously spoken of. Of these experiences I will speak presently, but here let me add that I have given up the practice and investigation and should not like to take the pencil again under any circumstances, as I have no wish to evoke a return ; I have escaped the fire and am now free. I enjoy fair health, mental rest, work continually at my bench, lie down in peace and wake up with thankfulness ; I say this that others similarly situated (and I know several) may be encouraged to overcome. It may be some time before they can shake off the influence, but they will do so if they seek the needed help, but it will be an impossible matter for their own strength.

Now, before I proceed further, I will offer a physiological and psychological explanation. When a young man I was fond of phrenology as much for the sake of amusement as for instruction, as I possessed two craniums beside my own and Coombs' work on the " Constitution of Man," I became a bit of an expert according to the rules of science ; but more recent discoveries by Professor Ferrier on the functions of the brain, furnishes us with a better chart ; and for the better explanation of this section of my subject I will lay a few facts before you on which my further deductions will be made. The anterior and posterior lobes of the brain, what are called the influential and automatic arcs, though they are two, yet, in their action on the other, they are one. The anterior lobes of the brain—the forehead—represent the influential arc, reason, reflection on, perception, veneration, conscience, seeing, and hearing, &c. The posterior lobes (generally called the animal propensities) represent the automatic arc. If the convolutions of the anterior lobes are excited (when the top of the cranium is removed) or touched there is no motion, but if the convolutions of the posterior lobes are touched or excited there is motion, contraction of the arms and legs or gestulations of the face, &c.

Now, what I wish you to note is that the mind, the influential, acts upon the automatic arc, and the limbs are moved to work according to the will of the mind. Just as the automatic arc can be excited from without to move the limbs, so the mind exercises this same power from within. The automatic arc is the centre of motion when acted upon by the influential, and that through the spine and nervous system, the spinal cord being the tail or elongation of the brain with its branch accessories, the nerves. Now, as it has been shown in the living subject that it is possible to excite the automatic arc artificially, I am about to show, without vivisection, that the influential arc can be suspended and he automatic acted upon by another mind, external to oneself.

Before I lead you to a clearer solution of some of the remarkable manifestations referred to, I will furnish some examples from mesmerism. These will serve to illustrate more clearly my meaning. Mesmerism is the doctrine of sympathy and the two persons concerned must be in perfect unison. A person submits himself to be mesmerised– that is he surrenders his will to another. Now, the human mind and will is a fortess that never can be taken, but only surrendered. God, the donor, does not force Himself on man, but gives him freedom of choice, and he has power either to resist God or the devil, or yield to either. Without a surrender of the will the subject cannot place himself in a passive condition and the operator has no power over him. Analogous laws are observed in nature as in electricity. It takes a positive and a negative to make a complete circle. Charge two balls with positive electricity and they will repel each other; charge one with negative and the other with positive electricity and they are drawn together. Two positive men could not mesmerise—there is no affinity; thus it is sometimes a serious business when two positives come together. For another illustration, if you take a horseshoe magnet, invert it, and balance a small sheet of white paper on the poles of the magnet, take some small steel filings and let them fall gently, they will arrange in order like two stars or circles round the poles. You cannot see the magnetism, but you can see the effects of the invisible force. One of the poles of the magnet is positive the other negative, these two circles blend into each other (through the steel filings), and a complete circuit is formed. This will further illustrate what is meant by the two spheres or circles overlapping, so often referred to. But to return to mesmerism. The operator is of the positive, the subject to be mesmerised is of the negative temperament. The operator may, or may not, take his subject by the medium nerve of the arm or of the forehead, then with a pass or two of the hand the two are blended into one. The subject is put off to sleep. In this condition sensation may be suspended and a limb cut off without causing pain, the influential arc with mind and will are suspended and held in abeyance. The operator now wills, and, through the medium of the odic spheres (or electric circles which fall below the observance of natural vision), he acts upon the automatic arc of his subject, what he wills the subject does; so for the time being the operator if I may so express myself actually possesses two bodies, his own and that of his subject both being under the control of one mind, though not in actual contact.

The operator says to the subject go to the nearest watchmaker's shop and steal a watch. Away he goes (he may be a perfectly honest man) and with all the cunning of a thief, he watches his opportunity, he steals the watch and brings it to the operator who puts it down on the table in the presence of the audience. The watchmaker has been prepared for the event. Now says the operator go down in the passage and bring me a coat. A coachman has just come in and hung his up. On turning round he sees a man bolting off with it up stairs, he quickly follows. The lecturer bids the coachman be easy, it will be all right. The watch and the coat lie upon the table in front of the audience. The subject is now brought back to his normal state. Where have you been sir, asks

the lecturer (and operator). I do not know sir. Do you know you stole that watch and coat? Never replies the subject. Have you ever seen either before? Never to my knowledge. This audience can testify that you brought them and put them on the platform, and here is the owner of the coat he saw you run off with it. The subject is mesmerised again. The operator mentally repeats a short address and though he does not speak himself, the subject gives the address. He is now restored again. Where have you been this time? I do not know. Do you know that you have been addressing this audience? I have no knowledge of it. You have and a reporter here has taken it down.

Now, reader, understand in these illustrations the influential arc of the mind, will, reason, conscience, are all held in abeyance or suspended, and the automatic arc is acted upon by another mind through the odic (or electric) circle and that is carried on without visible contact. It is imperative that you understand this; I have never heard this explanation given, but it has emerged from my own experience. Before I enter on that experience again there is another feature or phrase of the phenomena; the subject can be mesmerised or biologised. Biology is the doctrine of impressions. Here the subject is not put to sleep, he is awake, but his senses deceive him. The operator says look at the stick I hold in my hand, see, now it has become a serpent—it is a real serpent to the subject and he bolts from the platform, creeping in terror under the chairs, amongst the audience.

Now, reader, if a man can produce these effects upon his fellow-subjects can you be surprised at the Egyptian magicians, who were expert mesmerists, throwing their rods down and their becoming serpents, for you must understand most of the lookers-on were heathen, under the spell of the Devil, worshipping and sacrificing to devils and the magicians were his agents. Thus if men, by submitting themselves to men, can be so deceived and deluded, is it any wonder that, when they give themselves up to the will of the enemy, they are so deluded and deceived. I will prove, or endeavour to prove, to you that those that have departed this life unsaved, as well as the emissaries, can act upon the automatic arc, through the medium of the odic (or magnetic) sphere when the subject throws himself open, for the same laws govern mind in the eternal world as in this, and communications come in by influx through the same and similar mediums, and while I will endeavour to show that this is possible to those in the lost state, I will also try and prove that it is a matter impossible for any soul gone to the heavenly world to communicate through the same media to friends on earth—God would not permit it.

I need not go over my experience of automatic writing, but here let me say that when a person developes into a psychic or medium, he becomes negative to the spirit or under world; thus when a trance speaker (and I know several) passes off into a trance, which he can do at any moment, as an act of his own will and recall himself again, what does he do? He suspends the influential and then the automatic arc becomes open to influences external to himself. The odic sphere that surrounds the soul and permeates the body in this life, goes out with the soul at death; thus when the departed souls from the lower sphere see the

psychic open, they are attracted by the light of his sphere and rush for communication. If the one who strikes the sphere of the psychic first has been an orator in this world, he will speak through the medium and give a splendid address. Then a scientist may come and discourse on the science of his life's study and so on, several addresses following, and when the psychic comes out of his trance, except by reading them in the press, he knows nothing of the addresses he has given, There are other phases, as when the speaker is awake, but having his mind and will suspended. Now take my own experience. I sit and suspend my mind and will, they are kept in abeyance, the influential arc is suspended, I am passive, and though I am awake the mind is enthroned above watching the process, the intelligences from the outside are playing upon the automatic arc, through the medium of the odic circle and my hand is used to write their thoughts, just as it is raised when Professor Ferrier excites a convolution of the brain, the only difference being that it is used by an intelligent agent ontside.

Now, reader, you may ask what is the difference between the manifestations in the first section of your article, and this the third you say that the spiritual eyes were opened in the first. The difference is this, which is a point of the highest importance in this analysis of the subject. When the little dying brother saw his sister and said Sissey, dear Sissey. The influential arc was in full play and open, the soul quickened towards eternal light. Those avenues were opened through which God speaks to man through the mind, the eye, the ear. "The entrance of His Word giveth life," the mind and soul is in full play, the automatic arc is sealed and the devil kept out. But in the evil communications you suspend the mind, shut out God and light, and quench and grieve the spirit and open the soul on the side of darkness and deception. Herein lies the difference and the danger of opening oneself and at first there is a struggle between the light and darkness which causes confusion.

Now, reader, I believe I have solved this question and bearded the enemy in his den and that by the light of scientific research. I have brought my reasonings and inductions to light and truth. I gave my explanation the other day to an experienced medical gentleman, who marvelled at my escape, and said "I never heard of such a solution, but I can follow you and your solution of these phenomena." I believe is perfectly correct.

And now in concluding this part let me give you a delusion of the enemy, as he plays upon the screen of the automatic arc, he can take subjective phenomena and project them into space, and thus make them objective, and as defined and clear to the deceived senses as Pepper's ghost, but without Pepper's or Brewsters apparatus, and thus confound subjective with objective and phenomenon. Several persons are seated in a circle, one wishes to see a departed friend, presently they all see her but one. One who in his mind expressed the wish, sees her, then every mind in the circle is impressed and the object desired is projected into space. It is an impression produced upon the automatic arc, every sitter but one is biologised and is of a positive temperament all the rest (psychic excepted) are negative. This is a combined action between the sitters,

the blending of affinities and the enemy; they do not know it, but they are deceived. For example here are two young men, both friends of mine. One is a mesmerist the other doubted his powers, so the doubter submitted to be tested, a few passes and he was made rigid. When the operator said, "Ship on fire." The subject looked with astonishment, and while gazing at the burning ship, with a few reverse passes he was restored to consciousness, but just as he awoke he saw the burning ship fading from his vision, as from the screen of the lantern in dissolving views. Now, reader, the ship never had an existence except in the mind of the operator, who impressed it upon the automatic screen of his subject. Look then at the mighty power and intelligence of the enemy. What can he not do, those who do not think, can have no conception of his subtlety. He has watched the work of redemption from the earliest ages. Paul said this of the enemy, "We have to fight against, not so much flesh and blood, but principalities and powers in darkness, &c." When Daniel had been praying for Divine help the Angel Gabriel came to him and informed him that he had been three weeks trying to reach him, that the Princes of Percia and Grecia hindered him (that is the emissaries of the devil), the air between earth and heaven was so thick with demons that he had to go and get Michael, a mighty Prince, to help him before he could cut his way through the enemies of the Lord (the Prince and power of the air). Think of it, reader, think also of the benign mission of our Lord. In coming into the world, He was made manifest that he might destroy the works of the devil, had it not been for His incarnation there would be no hope for us, for Satan seems to have been reigning and the cup of earth's iniquity was nearly full when Christ came. "I saw Satan," says our Lord, "fall as lightning from heaven. He crushed his power and led captivity captive," and yet how many deny the Divinity of our Lord and try to pluck the crown from his head, and then ask his followers to be charitable towards them when they have cut off our hope. What is the use of preaching and talking of the Fatherhood of God, when they have cut off the communication between God and man; is it not an intellectual infatuated delusion; a sop of the enemy.

And now to come to the climax of this question. What is it but Antichrist? I will give it you in the language of a professed spiritualist, who thus expressed himself to a friend of mine, now in College training for the Ministry :—"I am not an atheist, he said, nor an agnostic, but I do not believe in your religion, your God; I do not believe in the Bible as inspired; I do not believe in a Hell or Devil; I do not believe in the Divinity of Christ, nor in His sacrifice; I believe there is such a thing as evil and all work together for good. I once believed, as you do, and sat regularly under the Rev. C. H. Spurgeon's ministry. When I became a spiritualist, I gradually doubted till I disbelieved." Ah, said my friend, it is the old story; you forgot the warning in the Epistle of John. To try the spirits and as you have neglected to do this you are trapped by the enemy. Any thoughtful, prayerful man, who has studied this question will see it is the work of the enemy of souls. There are a number of clever, well-educated writers on this question, nearly the whole of whom deny the Divinity of our Lord. This is the delusion

and the subtlety of the enemy, who blinds his converts with wordly knowledge, called a high order of culture, manifested with ostentation and a show of wisdom, "The world by wisdom knows not God." I do not say that some of these cultured minds are not ignorantly trapped and their eyes veiled; I believe they are, and though earnest, yet are mistaken. The delusions and infatuations of the enemy are so subtle that men are soothed by him. Just like the little squirrel, climbing from branch to branch, is soothed by the breath and rattle of the rattlesnake, until at last the helpless little creature, overcome by the mesmeric fascination, falls into his mouth. This is not all; the spiritualists advocate free love—that is the snapping asunder of the marriage tie when wearisome, breaking the holy bond and marring and contaminating the sacredness of the home circle. What is it but the tactics of the enemy to bring the world into a state like the antediluvians, and thus open the flood-gates of iniquity to the enemy. When Kate Fox, of America, first opened up this question, spiritualists were few, and now it is computed that there are over twenty millions in different parts of the world, with a large staff of literary men and women and an influential press. If I were to state the names of the promoters and their works it would astonish you. What is it, reader, but the unclean frog that has come up on the face of the earth? What is it but the beginning of the great falling away spoken of? What is it but the marshalling of the forces of the enemy against Almighty God, and His anointed?

I would here note, while spiritualism culminates in the denial of the Divinity of our Lord, some Spiritualists believe in the truth, and will until they are led to give it up or detect the subtlety of the enemy. But this negation applies not merely to Spiritualists, but to many others, advanced scholars and those less favoured. The air seems full of it. All that the enemy of all righteousness needs is that men should deny the Divinity of our Lord; he will not trouble them any more after that, his end is secured. This is an awful subtlety. It is a fact detected by the thoughtful investigators of Spiritualism. The first thing a demon who personifies a friend does is to lead them to deny the Divinity of our Lord if possible. I will furnish proof presently. Now, reader, if Christ is the revealer of the Father; if "He is the Way the Truth and the Light, and no one can come to the Father but by Him." If you have to pray the Father and make your request in the name of His Son (for what is the use of praying without him). "If there is no other name given amongst men whereby we can be saved." How are those who deny Him to get into the Kingdom? Neither God nor Christ cuts them off; they cut themselves off. Like the man that sat on the limb of the tree, he cut himself off (from the Love and mercy of God the appointed means). Here is a denier, an intellectual man it may be, says, he can only live according to his light. The heathen Philosopher may say so. But can the denier do so with an open Bible. Which is the true light—the Word of God or man's intellect, which are as wide as the poles? This may be thought severity and sometimes there is a call for charity. What is charity? Not merely the spirit of giving; true charity begins with love to Christ. If men reject Him and shut Him (who is the appointed messenger of love and mercy) out in the cold. Where is the Charity? If men pluck

the crown from off His head and place it beneath their feet. Where is the charity? A high order of intelligence as men consider learning is no excuse for this kind of treatment. But they say we cannot have this thing forced on us. God forces himself on no man—He offers His gift and it is rejected. You may exalt men to the very heavens for their discoveries and literary attainments. You may even, if I may so express myself, almost worship them. We are not to undervalue the discoveries of science and splendid attainments, they have to be consecrated to the glory of God, this is the end of our highest being. But what does it all amount to if Christ is rejected. "Though I speak with the tongue of men and angels and have not charity, I am become as sounding brass and tinkling cymbal. Though I have the gift of prophecy and understanding, all mysteries, and all knowledge, and though I have all faith so that I could remove mountains and have not charity, I am nothing. And though I bestow all my goods to feed the poor; and though I give my body to be burned and have not charity, it profiteth nothing." Charity, love to God is the receiving His Son. This is the very first thing that demons, who personify friends get their converts to deny. "He that believeth not God, hath made Him a liar, because ye believe not the record given of His Son, and this is the record God gave to us, eternal life, and that life is in His Son." Reject His Son and where is the eternal life. Reader, be not deceived in this matter by high intellectual attainments. The teachings of God are clear. "If any man will do His will he shall know of the doctrine whether it be God. He that hath the Son hath life, but he that hath not the Son hath not life." "But we don't believe the Bible," say some. Then what do you believe. Before I detected the subtlety of the enemy in my research, I found there was a dead subtlety stealing over my mind that I cannot explain. I went off for a change, but the glory of a bright spring morning had no charm for me. There was a time when a spontaneous song of praise would gush forth, but there seemed to be something stealing on to crush every joy and pleasure out. This is a subtlety similar in nature, but different in its operation and more soothing, that steals over other minds of men when they have pursued a course of study that neglects or crushes out the higher powers of the mind. And it comes to this, What do all our attainments amount to if not consecrated to the highest purpose? "What does it profit a man if he gains the whole world and loses his own soul?" Let us draw an example or two, as it applies equally to all men. Here is an engineer. He may have done his part in the world's engineering, but man was intended for something more than an engineering machine. Suppose he denies Christ, what are all his engineering attainments to him if he has lost his own soul, admitting he has left his footprints on the sands of time. As of the engineer, so of the scientist or literary man, as well as the less favoured in endowments. What do their splendid contributions to science, though their lives may have been exemplary in other respects, if they deny Christ? What does it profit them if they have gained the praise of the world and lost their own souls? Is not the simple, truthful faith of any man preferable, at

the end of which is everlasting peace? It is true that some believe in Christ as an historical personage, such as Cæsar or Napoleon, but they reject him as the Saviour of the world. "Devils did more than this, they believed, and trembled and said, Lord, we know thou art," &c. Now the evidence I referred to. There is a Christian man with a Godly wife. The wife dies; the husband adopts spiritualism. His wife was said to be always with him, this was a demon that personified her. The first thing his supposed wife did was to get him to deny Christ and the Bible, then give up Christianity and believe in the teaching of spirits. His ground for denial was that his wife was a Godly woman in this world, and on that ground he believed all she said, and now she was in the other world. She had found religion all a farce. So he gave up his Bible and his Church, and began to preach the Devil's Creed, first denying the divinity of our Lord, with all that follows. He continued this for some years, under the instruction of his supposed departed wife. By some mean he discovered that he had been duped and deceived by an emissary of the enemy. There is nothing these demons dislike so much as the name of Jesus. "The devil trembles when he sees the weakest saint upon his knees." There is nothing that will make them fly like a test of this kind. I have proved it over and over again, a subtle and clearer message has been written out. You question it, you are assured it is true by the intelligence, and most who practise this thing may accept the statements without testing them. I abjure you in the name of the Lord Jesus, Is this statement true? "I am an enemy of all righteousness," would be the answer in every case, nearly without an exception. They cannot stand the test of Christ. This is our only hope, our only test, and if literary men try to blot Christ from the spiritual horizon, where He has risen as the Son of Righteousness, with healing in His wings, where are we going to get another test, can men's intellect or science supply one?

Ministers beware, the enemies of Christ are entering the Churches. What is the present outlook and what are the signs of the times? Is not the air full of warnings? When we see the lawlessness abroad and the apathy of the people, the deadness amongst professing Christians, a kind of flux from infirmness seem to permeate the air. Who is sufficient for these things? The Apostle in concluding his Epistles says "The grace of God be with you, &c.," because the human is no match for the superhuman. When we have that grace we are linked with the infinite, and it is only as we rest on the arm of the Omnipotent can we stand; it is only as the infinite is linked with the human that we can overcome the superhuman. We are not ignorant of the devices of the enemy, and we must, if we would stand, watch and pray; gird on the gospel armour and fight, for with the enemy there is no quarter and no truce.

Before leaving this part of my subject, let me say there are some that do not believe in the inspiration of God's Word. Do you think, reader (as God does not interfere with the free agency of intelligences), that He would permit the emissaries of the enemy to write and speak through men, through avenues contrary to divine order, and not inspire His own appointed servants with His Holy Spirit, through the appointed channels of seeing and hearing, and thus declare His own mind, will and

eternal purpose through them. Is the Devil to have it all his own way? Many spiritualists believe in the miracles of the Devil and reject the miracles of God. Do you think that God would permit evil spirits to enter the bodies of men and speak through them (cases especially limited to our Lord's Day to imitate His Incarnation) and not reserve to Himself the power of becoming incarnate that He might crush the power of the enemy. See these demons, they possess the bodies of men, by keeping the mind in abeyance; like the Mesmerist referred to, and speaking through the man. "We know who Thou art; Thou art the Holy One. Art Thou come to torment us before our time?" They knew all about Christ and His mission into this world, and watched with envious eye the work of redemption. See the man amongst the tombs when the demon was driven out (who said his name was "Legion"), he was then clothed and in his right mind. Look at it, reader, legion—six thousand emissaries to look after one soul. Who can estimate the value of the human soul. When Peter took his sword to defend our Lord, he was reproved, and the Lord said, if necessary, He could beseech the Father, and could send Him more than twelve legions of angels. When Elisha and his servant stood alone with the Assyrian army, the emissaries of the Devil around him, "More are they that are with us than with them," said the prophet. When he prayed that his servant's eyes might be opened, he saw the host of the Lord. Be encouraged, Christian, God's love is stronger than the devil's hate. I will now leave this part of my subject and only add that one of the best articles I have read on the question of spiritualism, appeared in Charing Cross, for the month of May, 1877, written by Rev. Burlington B. Wale, F.R.G.S, Author of "Biblical Outlines," "The Book of Hebrew Roots," "Handbook of Comparative Philology," &c.

I will now pass on to some other features in my own experience. I would here say that I find it exceedingly difficult to abridge and condense so great a subject. I stated previously that when I detected the subtlety of the enemy, I cut off the communications by isolating my mind and will, but that I retained the use of the pencil at intervals to watch the action of the mind and soul. But this would be frought with danger, especially to any who had not detected the subtlety of the thing. Sometimes when I took the pencil it would be dropped and my fist would be clenched. I knew what that meant—enemies watching to use it; at other times, as the pencil was used, on warning coming it would be pushed up the sleeve of my coat in an instant—that meant desist.

First, I will give a note on unconscious cerebration, but this does not explain everything. It is only one of many phases. At one time my hand wrote in Malay characters, this perplexed me, but years ago I saw the Lord's Prayer in Malay, and was struck with the characters, I thought nothing more of them, but now my hand is automatically producing them again. They were taken in and unconsciously impressed upon my memory, and are now reproduced by my hand. Here is a servant girl in the service of a Linguist, she is uneducated, but at times she goes off into hysteria and while in that state with her mind suspended her soul expresses itself in Latin, French and German, of which she, in her normal state, is ignorant, she has been unconsciously

taking it in from hearing her master teach his pupils. We are all absorbing influences and throwing them off unconsciously. The difference in her case and mine is that I am awake and conscious, while my hand is automatically writing in Malay ; she is unconscious whilst she is so speaking. How marvellous the construction of the mind and soul.

Now a word on insanity. How often do you find persons whose lives have been Christian, chaste and unsullied, in illness when the mind has been impaired, curse and swear, whilst, when in health and in their normal state, an oath has never been heard from their lips. As soon as the influential arc is suspended by disease and the mind is suspended from action, or they are out of their mind, the enemy takes advantage and acts on the automatic arc and for which they are not responsible. The Governors of asylums must see this action is external to sufferers so afflicted.

And now as to diseases. If a subject is mesmerised by an operator, who is a smoker, or a drinker, though he does not touch his subject and the subject is salivated, he will taste the tobacco or liquor strong in his mouth and become affected by influx through the invisible odic sphere. Thus if a diseased man or woman sits in a circle every one in the circle will have his own sphere fused with impure magnetism, even the malaria from the pit. Thus in infectious disease it is not at all times the floating germ theory, but when the sphere of a visitor becomes permeated with that of the one affected with fever, small-pox or other affections. Psychology will yet turn physiology upside down.

Now another feature is that when the soul is open in this way at times it is conscious of its surroundings, and also of what the mind is not conscious of, here comes the solution of thought transference. I could tell you things that would astonish you, but if I did you would not believe them. What I have already said may be in advance of the age and not credited, but this I expect.

Another feature, I referred to it before, is that the soul is not only open under this suspension of the mind, but the memory, the soul's registry, and anything can be quoted from the registry by the hand without the external mind perceiving it. You will remember what I said about the open memories under certain psychical conditions in my first subject.

And now, I will relate an experience given me by the same young man who gave me the spiritualistic belief. I was induced one day to go with a friend to see a noted medium, never having been in contact with one before. I was a perfect stranger to him, but he laid hold of my hand and said, there is a spirit near you, a relation of yours. I said tell me her name? He told me, her age, when she died, and what she died of, &c. It was my sister, I was perfectly perplexed, where could the medium have got the facts and dates. Why he went to seek communion and got what Saul did when he went to the witch of Endor. The facts and date were copied from his own memory by submitting himself, and then placing his hand in that of the medium, they were selected out by the enemy unconsciously and transferred back to him through the medium, memory, pictures and dates. I have shown you by the open memories that it registers everything. Now it happened that I visited

this young person before her death several times, she being a bright Christian, I believe she is in glory, and that God would never permit this intercourse, my reasons being given before. One morning when I came into her room, she said to me I have had such a conflict with the enemy since your last visit, he wants to persuade me that I am lost. Ah! he will worry God's children to the last if he can; but do not believe him. Note—he was a liar from the beginning; he was always the accuser of the brethren, but God is Love; Christ does not accuse, He came not to condem but to save. Who do you believe, God or the devil. "The Lord is my strength"; yes, and His, promise, too is that "He will never leave or forsake you;" He will keep His word; He cannot lie; His banner over you is unchanging and undying love. There is another phase of mental phenomena where (if I may so express myself) the internal mind sees what the external senses cannot detect. If, on the spur of the moment, I was about to take any course of action that was not wise, the mind would see it and the index finger indicate it in an instant; say wherein my determined course was faulty and suggest another. You may say this is a wise counsellor and very convenient to have such an instructor close at hand. I always found these corrections were according to truth and righteousness and mostly attended with gentle admonitions. Now, reader, you may say wherein lies the difference between these communications and the others; is it not from intelligences external to one's self? No; the solution and the explanation is within one's self; to put it more clearly, the soul witnesses through the mind with the light—(man has the old nature, and the tendency of that nature is downwards, so that he cannot help himself). The man that desires Truth and holds it has that spirit within him that makes for righteousness, and if men will let that voice speak and not stifle it, it will always do so without these writings and witnesses, because it is born of the light. The natural mind may determine a course of action, but, by a moment's reflection, it is reproved by the light, and the internal mind uses the hand to write the instruction, guidance and admonition. In my natural writing there is this remarkable feature—my thoughts are crowded, there is a volume of thought, like metal hot from the furnace, ready to pour forth, but they have not been moulded into shape, they have not the clear, sharp profile of the die, thus in expressing myself I often use too many words; but when my hand writes the sentences to which I refer they are clear, sharp, terse, and full of meaning. I have often wished I possessed this power externally. It is writing of a very different character to what I first described. However, it is all given up, but to have left out this part of my experience would have been to withhold a manifestation of the light that witnesses within. I will just give you one or two examples that will illustrate how the internal mind sees external courses of action, the issues of which the external mind does not detect, and shows one the importance of seeking Divine guidance, not only in our general actions, but even in the reading of a book. When I was about to read Ruchenbach's work on "Ode Magnetism" my finger indicated (as if the mind perceived the nature of the book before I studied it) and the hand wrote "Be careful how you read that book as it may tend

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Thus we learn that men, notwithstanding their failings and weaknesses (for God knoweth our infirmity; He knoweth our frames and remembereth we are dust) can always look up, and if we surrender our wills and open our minds God will instruct us, for He has promised that if we ask of Him He will give liberally to all men (in whatever condition or state) and upbraid not. Now, reader, let me say that whilst I have given you my experiences in the study of this great matter, for it is no small one, I have never had recourse to their consultations beyond watching their phenomena; all that I have attained in the pursuit of my business and the study of psychology has come to me through ordinary channels and has been worked out by honest, close observance of facts and constant, unflinching perseverance. And now, in concluding, if I have added something to modern research, by way of throwing light on these great and momentous questions, though through a painful process, my object is attained. I do not ask you to accept all I have written, but to consider it. I feel life to be an awful reality, but the height to which the human soul will attain in the glorified world is beyond all computation: "Eye hath not seen, ear hath not heard, neither has it entered into the heart of man to conceive what God has prepared for those that love Him." Reader, believe me, the only reliable testimony is the Word of Eternal Truth, and the only abiding consolation is the unchanging love of God.

The following opinions of the Press appeared at the time "The Seat of the Soul" was published, seventeen years ago. I had not then published the articles on the "Lost Senses," neither did I know anything of a psychical experience.

This is one of those extraordinary works which occasionally issue from our press. It appears to be a complete *olla podrida*—Theology and Biology, Mechanics, Surgery and what not.—*The Scientific Review.*

We recommend a perusal of Mr. Gillingham's pamphlet, which is carefully written by one who has devoted much time to the study and investigation of the subject.—*Church Opinion.*

One of the most remarkable books we have seen for a long time.—*The Literary World.*

This is a profoundly thoughtful little book ; it is so novel alike in respect of its facts, its arguments, and its authorship, that I am sure our readers will thank me for introducing it to their notice.—*The Exchange and Mart.*

There is some very fine reading in Mr. Gillingham's little work, and doubtless such of our readers as are interested in the "Matter and Life" discussion will become possessed of it.—*English Mechanic and World of Science.*

The spirit of the book is excellent, we can only hope our readers will peruse it for themselves, they will find much that is interesting and from which they may profit a great deal.—*The Christian Spiritualist.*

This book is of absorbing interest treating as it does of questions the most momentous to men. The object of it is to prove the existence of the soul by logical inferences drawn from observations made by the Author. Every page of this little work is deeply interesting to the earnest searcher after truth, and will abundantly repay perusal.—*The Kilburn Times.*

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Baptist College
Bristol

6 June '86

Dear Mr Gillingham,

I have just finished reading your work on "Psychology". It is a most wonderful little book. I have seldom read anything more interesting. The spirit of it is extremely good, & I firmly believe it will prove very useful in the furtherance of the Cause of Jesus Christ.

You ask for a criticism of it. So far as the subject matter is concerned, I don't feel at all qualified to give one. The points you touch upon are so numerous, & are of such vast importance, and the manner in which you deal with them shows so much deep thought, that I feel a

considerable amount of study of the same matters would be necessary before I could safely (to myself) enter into discussion with you.

One thing I would like to say, however. While reading the section dealing with the shape & form of the soul, & its identity in these respects with the body - or what the body should be - i.e. having its full complement of limbs, I was reminded of an article I once read in a German book. There is no, or little, similarity between what you say & the article in question, but the above named section made me wonder how you would explain the matter brought forward by the German writer.

The article is written by Rudolph Hermann Lotze & is an extract from the fifth - book of his "Microcosmus" - being a portion of his second chapter in that book. The fifth book is on "the spirit" (Geist), & the second chapter is entitled Die menschliche Persönlichkeit, "human consciousness" -

I see you quote from Lotze mpp xxvi. xxvii - but not on the point I mention.

Lotze shows that when a man takes - say a staff, touches an object with it, it seems to the person holding the staff as though his sense of touch were transferred through the staff to the point which is in contact with the object. He deals in a similar way with the pen of a writer, the probe of a surgeon, the groping stick of the blind. And he also mentions the case of some children at play. One of them fastens a ribbon round his waist, & leaves one of the ends loose, calling this his tail: as the child runs the ribbon streams out behind him in the wind; & his sensations are as though a part of himself had entered into the ribbon right to its very tip. Many other like illustrations are given. Have you a theory on this point?

A similar sensation is felt by one who throws - say a stone at any object

Although the stone has actually left the thrower, yet his sensations are drawn out - right away to the object at which he aims, & if the object be a living thing & the stone hit it, a sort of pleasure is felt by the thrower - as he experiences in some measure a feeling of the pain he has caused. How do you account for this? In the above cases we have a part of - shall I say the soul - going out beyond the limits of the body (which you give as the boundaries of the soul), & even reaching out - & feeling in a certain degree - to a distance from actual contact with the body - as in the case of the stone thrown.

I should like to ask just one other question suggested by your work. On page XLVII. you mention, as one of the communications you received :- "The eye of God is upon you" - Why should this message be given - if the communica-

be sent through Satanic agency - as you clearly (I think) show, ~~it is~~ in your book? And again, on page LIX, you say that if the spirits are abjured in the name of the Lord Jesus - as to the truthfulness of any statement they make, the answer will almost without exception be:- "I am an enemy of all righteousness". Are the spirits bound to answer such questions as these? And if bound to answer - can you give any reason why they should reply in such a way as to defeat their own ends?

Leaving now the subject matter of your book - would you kindly allow me to point out one error, (so that it may be avoided in your larger book). On page XLVIII - you say:- "Thus if the wire be one mile or five miles long, the ship sails in an electric circle two miles in diameter & three in circumference, or ten miles in diameter & fifteen in circumference". The circumference of a circle ~~equals~~ just over three

times its diameter - not radius. (The exact fraction is $\frac{22}{7}$). so that the quotation just made should be :- "Thus if the wire* be one mile or five miles long, the ship sails in an electric circle two miles in diameter & six (or thereabouts) in circumference, or ten miles in diameter, & thirty (or thereabouts) in circumference".

Quantities varied

There are numerous printers' mistakes :- such, as :- "soma pneumaticon" (p XXVIII line 19) for - soma pneumaticon (σωμα πνευματικον); "bring them re" (p XLVIII line 47) for "bringing them re"

I could give a pretty long list in this direction. Pardon me for referring to this.

I am very much obliged to you for the book - I intend to study it carefully, for I think it quite worthy of a great deal of thought. It is very full of suggestive matter. I thoroughly agree with "The Literary World" - that it is a

* The wire you state in previous sentence to be the radius of circle.

most remarkable book, & I think it will do good in the direction you so much hope for.

With kindest regards to Mrs Gillingham & yourself, I am

Yours very Sincerely,

William Pickford.

MERRIOTTSFORD,
CREWKERNE,
SOMERSET.

4. 8. 1909.

Dear Mr. Gillingham,

A few days ago I met Your Son at one of the Exeter stations, and was grieved to hear You gained little or no ease from Your visit to the North.

How gladly would I hear a better account of Mrs. Gillingham and yourself!

It was on the 5th. of July that

You sent me your "Psychology and "Hibbert Journal" – for a month. I am returning them to the day, and thank you warmly for the loan of them.

In "The Hibbert Journal" "The Over-Emphasis of Sin" is deplorable, a wretched paper, to my thinking. Dr. Forsyth's is a great paper and most timely. And I much enjoyed ~~Dr. Hutton's~~ Mr. Hutton's paper on "Chesterton"!

Of course I read through with interest and curiosity your remarkable "Psychology." The farther I read the less I wondered that

you should shrink from the enormous labour of recasting the old material, and of adding much more of recent research and patient thought. This would make a big book, for the print might well be larger and the pages less. It would look better. And if you decide to reprint, you must have a printer up to date, for this one has allowed many printers Errors to slip through.

But all this must await your recovery from this weakness and pain. To me your observations and reflections have been deeply

interesting, and not less so your warnings against the subtle and occult wiles that might deceive any but "the very elect". Probably your exposures have turned the feet of many from the "forbidden grounds".

I retain very pleasant memories of Mrs Gillingham's hospitality and of your memorable talk.

With thanks and kindest rs.

Yards, Ever faithfully Yours,
Samuel Vincent.

You sent me your "Psychology" and "Hibbert Journal" – for a month. I am returning them to the day, and thank you warmly for the loan of them.

In "The Hibbert Journal" "The over Emphasis of Sin" is deplorable, a wretched paper, to my thinking. Dr. Forsyth's is a great paper and most timely. And I much enjoyed Mr. Hutton's Dr. Saunders' paper on "Chesterton"!

Of course I read through with interest and curiosity your remarkable "Psychology." The farther I read the less I wonder that

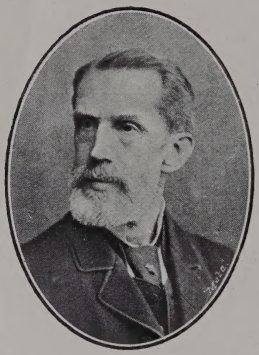
Lake Road Baptist
Chapel
Portsmouth.
June 3rd 1905

Dear Mr Fillingham,

I hope I have not
kept your Book too long.
Being interested in the
fascinating questions of
~~the~~ Psychology, you will
imagine my pleasure
in reading your own
speculations & researches
on the subject. It has
been a real treat.

a few literary defects—
but I congratulate you
on having presented a
very vague & abstruse
subject in a very ~~vivid~~
vivid & descriptive way.
If you had not a very
firm hold of the subject
you could not have
put it so clearly. I
should enjoy talking it
over with you again.
With kind regards &
thanks for book
Yours sympathetically
S. Roberts Hawes

To me such reading is
a great Deal more delightful
than reading novels —
that may & a may not
be true to Life. Should
like very much to have
a copy of my own,
but if you ever re-publish
the work I shall be
pleased to subscribe
for a few copies. Before
you re-print however
it would be wise to
get someone to read
it with you as there



J. Gillingham

Specialist.

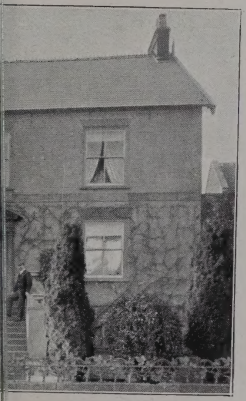
Mechanism for Curvature of the Spine, Paralysed Limbs, Fractures, Dislocations, and Various Deformities.

Prospect Hou

J.G. during his Thirty-Six Years of Practice has treated over 7,000 patients, and for some years he has been assisted in the practical working of the business by his son,

Sidney James Gillingham.

Manufacturer of
Artificial Limbs and
Surgical Appliances.



Abdomen Belts,
Crutches, & Trusses,
Elastic Stockings,
Knee Caps,
Artificial Eyes,
Spine Chairs, etc.

, Chard.

J.G's Illustrated Cases are some of the most remarkable on record, see

"The Lancet," November 7th, 1868.
"Medical Press and Circular," July 16th, 1873.

Medal, London International Exhibition, 1873.

[REPRINTED FROM *The Chard and Ilminster News*, NOV. 14TH, 1903.]

MR. JAMES GILLINGHAM, surgical mechanist, of this town, recently forwarded some photographs of patients to whom he has supplied artificial limbs, to Her Majesty the Queen, whose interest in hospital work, and extreme solicitude for all classes of the King's subjects who may have met with misfortune, a so well known. The photographs represent over is hundred special cases which have been treated successfully by Mr. Gillingham: more than thirty of these patients have suffered double amputations, and have been supplied with artificial limbs which have enabled them to follow some useful employment and earn a livelihood. There is certainly no surgical mechanist living, starting from Mr. Gillingham's position in life, who can show such a truly marvellous record. Mr. Gillingham has this week received a letter from the Hon. Charlotte Knollys, stating that she is commanded by the Queen to thank him for the interesting photographs which he has been good enough to send for Her Majesty's acceptance.

Some of the double amputation cases, illustrations of which were sent to Her Majesty, were treated by Mr. Sidney James Gillingham.

7, St Johns Road,
Clevedon.

Somaset.
Aug. 15. 1920.

Dear W. Gillingham.

Do you remember meeting
me in Exeter last month,
when I had the long-hoped
for opportunity of thanking
you for advice you gave me
years ago (over 40 years.)
against Spiritualism?
I have based on that
advice

& many others during the
past 40 years - & I was
deeply interested & hear
from you & the book you
are publishing against the
present-day increase of
Spiritism - May God bless
it, and you in this noble
effort. I have a great
& increasing horror of
demonolatry in any form

especially in the form that has captured many earnest Christians - the so called "Tongues" Movement - Will your book contain a warning against this?

I have been a Christian worker all these years; but now, since a serious operation 3 years ago, I have had to give up all public work -

I was very thankful to have been there, so

unexpectedly, given the opportunity
of thanking you! Have ever
remembered you with
Gratitude —

Yours very Sincerely
Emma M.D. Miller.

PS for ever since coming
to Clarendon: the kind
Men 20 years in Italy
+ came here to live
my last year —

Trinity Congregational Church,

EFFRA & CHURCH ROADS, BRIXTON, S.W.

PASTOR:
REV. MATHIAS LANSDOWN.

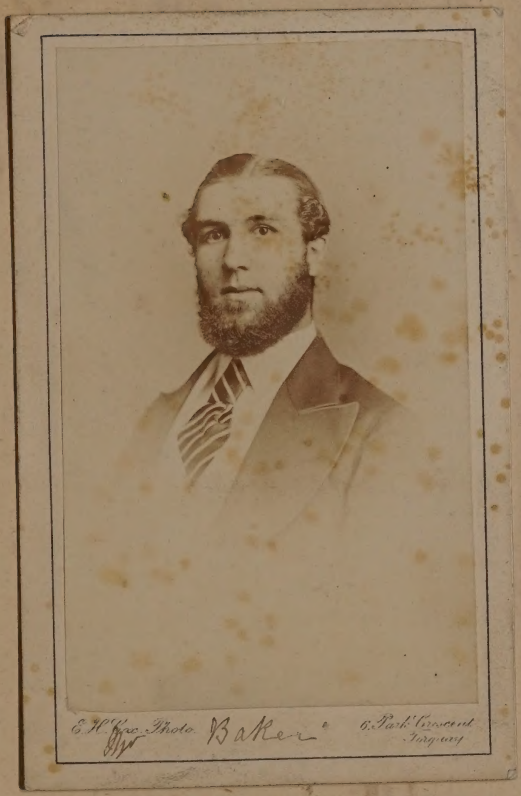
THE MANSE,
CHURCH ROAD,
BRIXTON, S.W.

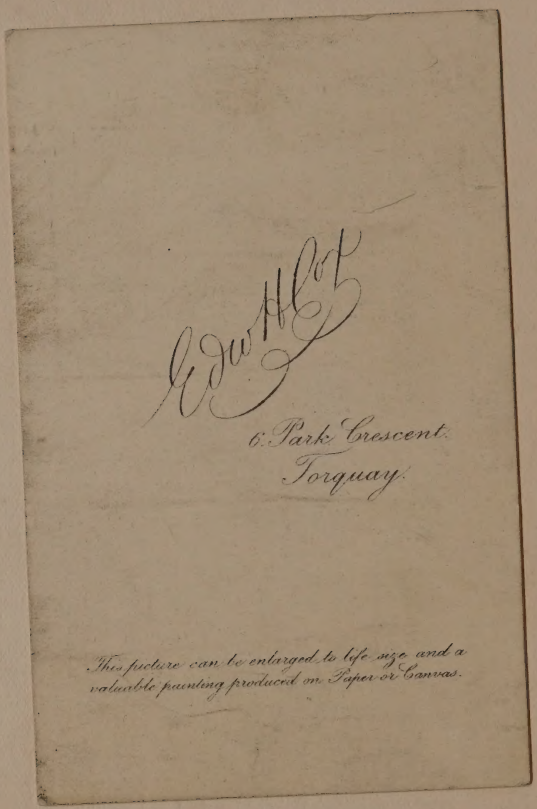
November 13th 1912

My dear Friend

I much regret the delay, but I was anxious to thoroughly examine your kindly loan book, and quite a number of my friends were also desirous of doing so. We have all been deeply interested, and are indebted

Grateful to you for the
loan of the book.
Please remember me
kindly to your family,
not forgetting your
good Father. It has
been a great pleasure
to be permitted to renew
a treasured friendship.
With warmest regards
Yours Sincerely
Matthias Tomkinson


E. H. Geo. Photo Baker 6 Park Crescent Torquay


6 Park Crescent
Torquay
This picture can be enlarged to life size and a valuable painting produced on Paper or Canvas.